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DATA RECORD OF OCEANOGRAPHIC OBSERVATIONS AND EXPLORATORY FISHING

No. 4

海洋調査漁業試験要報

第4号

THE FACULTY OF FISHERIES, HOKKAIDO UNIVERSITY
Hakodate, Hokkaido, Japan
March 1960

北海道大学水産学部
函館市港町
昭和35年3月

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海 洋 調 査 漁 業 試 験 要 報

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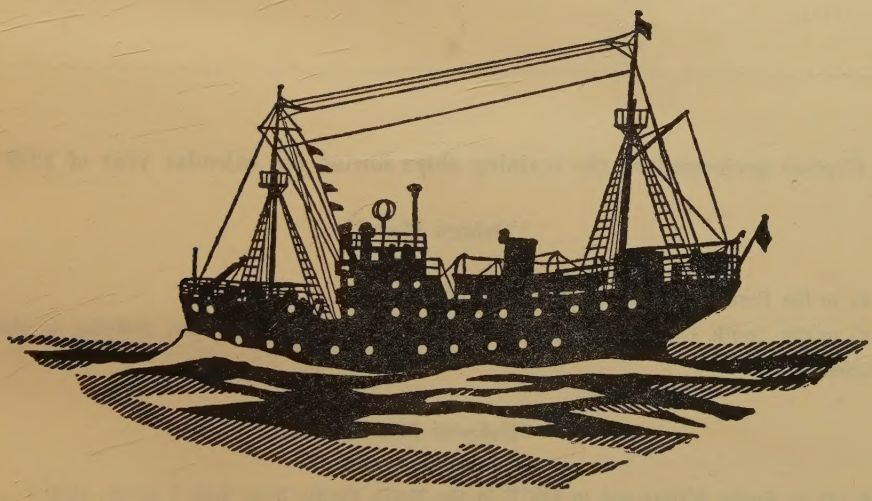

THE FACULTY OF FISHERIES, HOKKAIDO UNIVERSITY
Hakodate, Hokkaido, Japan
March 1960

北 海 道 大 学 水 産 学 部
函 館 市 港 町
昭和35年3月

NOTICE

This publication is being undertaken for the sake of making available to interested persons, as soon as possible, some preliminary data derived from oceanographic, biological or exploratory fishing researches carried out on the regular or occasional cruises of the training ships of the Faculty of Fisheries, Hokkaido University.

It is requested that due credit be given if data from this "Data Record" are quoted, or if information taken herefrom is incorporated in other papers.

本学部練習船を用いて行われた海洋観測，生物調査，漁業試験の結果が，各研究担当者によつて研究論文として纒められ，印刷公表されるまでにはなかりの時日を要し，且研究論文には個々の測定値が表示されない場合が多いことを考慮し，練習船の調査航海毎に調査成果を本要報として逐次刊行し，各方面の参考に供することとした。

本要報に載せた測定結果を他に引用する場合は本要報によつた旨明記しおかれたい。

Cruises performed by the training ships during the calendar year of 1959

"Oshoro Maru"

Cruise 44 to the Bering Sea from June 8 to July 27, 1959

Cruise 45 to the South China Sea from November 4 to December 26, 1959, stopping in Manila and Kelung

"Hokusei Maru"

Cruise 6 (1) to Kurile Waters and to 175°E in the North Pacific from June 5 to 26, 1959

Cruise 6 (2) to the Okhotsk Sea from July 9 to 24, 1959

Cruise 6 (3) to the Okhotsk Sea from August 8 to 22, 1959

Cruise 7 to the Tropical Pacific from November 6 to December 21, 1959

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(調査委員)

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Professor Tsuneyuki Saito (Chemistry) (教授 斎藤恒行 化学)
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Lecturer Ken-ichiro Kyushin (Salmon) (講師 久新健一郎 鮭鱒)

DATA RECORD
OF
OCEANOGRAPHIC OBSERVATIONS AND EXPLORATORY FISHING

No. 4 March 1960

海 洋 調 査 漁 業 試 験 要 報

第 4 号　　昭和35年3月

The Faculty of Fisheries, Hokkaido University

北 海 道 大 学 水 産 学 部

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（一部水産庁委託調査）

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I

THE "OSHORO MARU" CRUISE 44 TO THE BERING SEA IN JUNE-JULY 1959

おしよろ丸第44次航海
昭和34年6～7月ベーリング海調査
（一部水産庁委託調査）

1. Cruise Report
（航海報告）

Departure from Hakodate	June 8	（函館出港）
First hydrographic cast	June 9	（海洋観測開始）
First salmon gill-net set	June 13	（さけます流網開始）
Visited salmon cannery ship "Jinyo Maru"	June 20	（母船仁洋丸訪問）
Passed Amchitka Pass	June 25	（アムチトカ水道通過）
Passed Amukta Pass	June 30	（アムクタ水道通過）
Visited fish-meal cannery ship "Kinyo Maru"	July 3	（ミール工船錦洋丸見学）
Trawling	July 5-7	（トロール漁業）
Visited salmon cannery ship "Jinyo Maru"	July 12	（母船仁洋丸訪問）
Last salmon gill-net set	July 21	（さけます流網終了）
Last hydrographic cast	July 23	（海洋観測終了）
Arrival at Hakodate	July 27	（函館帰港）
Covered 6700 miles in total, 50 days at sea		（総航程6700浬，航海日数50日）

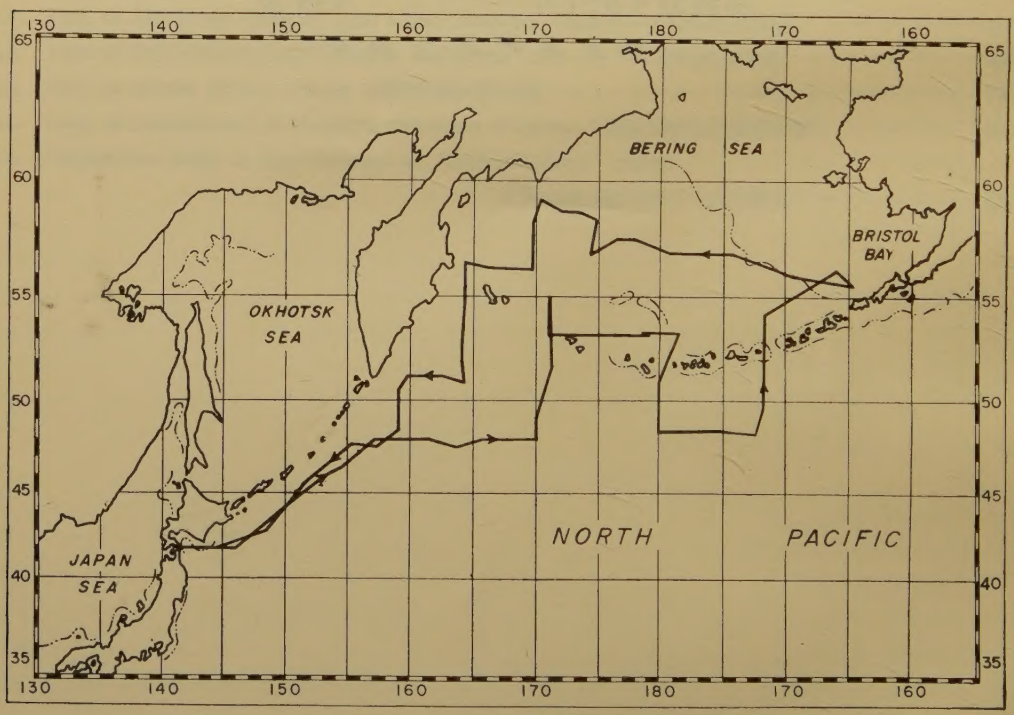

Fig. 1. Track of the "Oshoro Maru" cruise 44 to the Bering Sea in June-July 1959

2. Vessel Personnel
(乗 船 者)

Captain (船 長)	Takeji Fujii	(藤 井 武 治)
Crew (乗組員)		
Chief Officer	Shigeo Abe	(一等航海士 阿 部 茂 夫)
First Officer	Shoji Saito	(次席一等航海士 斎 藤 昭 二)
Second Officer	Noriyoshi Masuda	(二等航海士 増 田 紀 義)
Third Officer	Shigekatsu Nakane	(三等航海士 中 根 重 勝)
Chief Engineer	Shoichi Tomisawa	(機 関 長 冨 沢 正 一)
First Engineer	Kenzo Omi	(一等機関士 尾 見 健 三)
Second Engineer	Ichiro Kataoka	(二等機関士 片 岡 一 郎)
Third Engineer	Tetusaburo Inomata	(三等機関士 猪 股 鉄三郎)
Chief Wireless Operator	Toshio Kasao	(首席通信士 笠 尾 俊 雄)
Junior Wireless Operator	Mitsuo Kurotori	(次席通信士 黒 鳥 満 雄)
Purser	Akira Togashi	(事 務 長 冨 樫 章)
and 23 men		
Research Men (調査員)		
Assistant Professor (Leader)	Hideto Koto (Physical oceanography)	(団長 助教授 小藤英登 海洋)
Lecturer	Hisashi Kondo (Chemistry)	(講師 近藤尚 化学)
Research Assistant	Miki Oguro (Chemistry)	(助手 小黒美樹 化学)
Research Assistant	Takahisa Kimura (Bacteriology)	(助手 木村喬久 細菌)
Officer of Hokkaido Hatchery	Ryuji Fumoto (Biology)	(農林技官 さけます孵化場 麓竜司 生物)
	Tamitomo Kashiwakura (Chemistry)	(柏倉民知 化学)
	Tetsuo Matsuura (Bacteriology)	(松浦哲夫 細菌)
	Toshiaki Horaiya (Hydrography)	(蓬莱谷利明 海洋)
Cadets (実習生)		
23 cadets of Advanced Course of Pelagic Fishery		(遠洋漁業学科特設専攻科学生 23名)
Total 66 persons (総員 66名)		

3. Specification of Hydrographic Stations
(海洋観測地点)

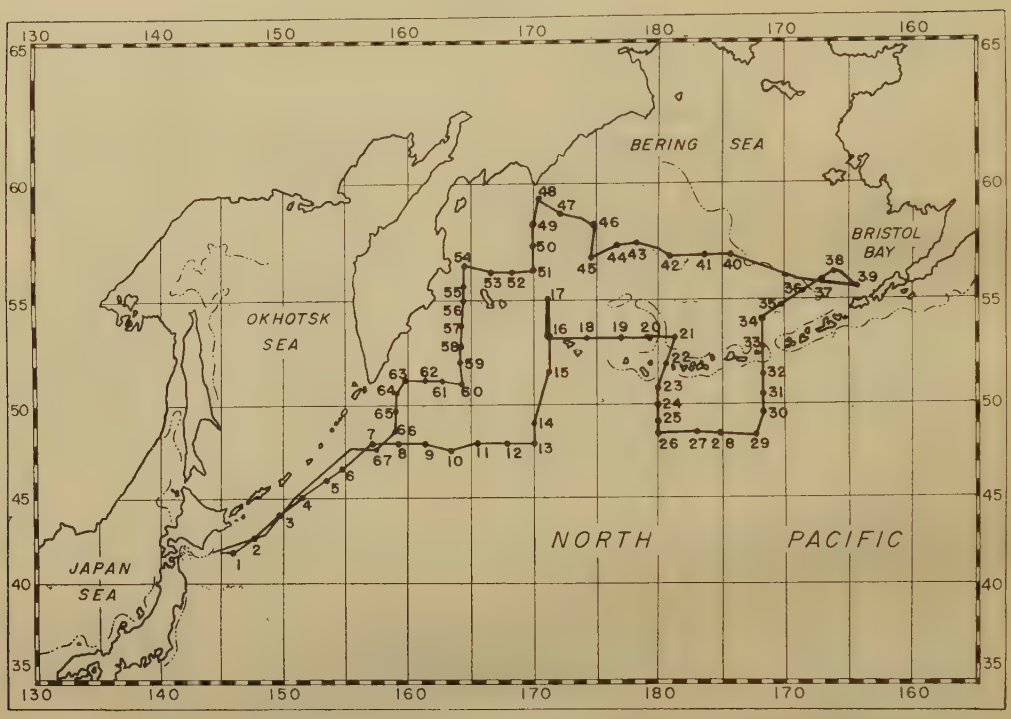

Fig. 2. Hydrographic stations in the "Oshoro Maru" cruise 44 to the Bering Sea in June–July 1959

Table 1. Hydrographic stations in the "Oshoro Maru" cruise 44 to the Bering Sea in June–July 1959

Station	Ship's mean time		Greenwich mean time		Position		Maximum depth of cast (m)
	Date	Hour	Date	Hour	Latitude	Longitude	
Os 1	06—09	1640～1819	06—09	0740～0919	N 42° 00′	E 146° 00′	1375
Os 2	06—10	0506～0614	06—09	2006～2114	N 42° 55′	E 147° 47′	1419
Os 3	06—10	1924～2054	06—10	1024～1154	N 44° 04′	E 149° 40′	1302
Os 4	06—11	0830～1030	06—10	2230～0030	N 45° 03′	E 151° 32′	1324
Os 5	06—11	2005～2115	06—11	1005～1115	N 46° 00′	E 153° 15′	1386
Os 6	06—12	0835～1001	06—11	2235～0007	N 46° 35′	E 154° 50′	977
Os 7	06—12	2304～0037	06—12	1304～1437	N 48° 00′	E 156° 59′	1280
Os 8	06—13	0957～1148	06—12	2357～0148	N 48° 00′	E 159° 13′	1488
Os 9	06—13	2211～2320	06—13	1211～1320	N 48° 00′	E 161° 29′	917
Os 10	06—14	1605～1810	06—14	0605～0810	N 47° 42′	E 163° 31′	1310
Os 11	06—15	1815～1928	06—15	0815～0928	N 48° 00′	E 165° 46′	1410
Os 12	06—16	0620～0704	06—15	1920～2004	N 48° 00′	E 168° 00′	1272
Os 13	06—16	1630～1740	06—16	0530～0640	N 48° 00′	E 170° 00′	1022
Os 14	06—17	0608～0722	06—16	1908～2022	N 49° 40′	E 170° 00′	1003
Os 15	06—18	0915～1127	06—17	2215～0027	N 51° 43′	E 171° 20′	1295
Os 16	06—18	2359～0107	06—18	1259～1407	N 53° 14′	E 171° 20′	1406
Os 17	06—19	1243～1400	06—19	0143～0300	N 55° 00′	E 171° 20′	1000
Os 18	06—21	1903～2047	06—21	0803～0947	N 53° 16′	E 174° 05′	1462
Os 19	06—22	0740～0853	06—21	2040～2185	N 53° 16′	E 176° 50′	1463
Os 20	06—22	1803～1954	06—22	0703～0854	N 53° 16′	E 179° 04′	1296
Os 21	06—24	1735～1831	06—24	0635～0731	N 53° 16′	W 178° 32′	1403
Os 22	06—24	1403～1524	06—25	0203～0324	N 52° 01′	W 179° 30′	935
Os 23	06—24	2210～2336	06—25	1010～1136	N 51° 00′	180° 00′	1240
Os 24	06—25	0632～0734	06—25	1832～1934	N 50° 00′	180° 00′	1470
Os 25	06—25	1506～1616	06—26	0306～0416	N 49° 00′	180° 00′	1428
Os 26	06—25	2020～2118	06—26	0820～0918	N 48° 32′	180° 00′	1426
Os 27	06—26	1708～1830	06—27	0508～0630	N 48° 32′	W 177° 20′	1205
Os 28	06—27	0620～0740	06—27	1820～1940	N 48° 26′	W 175° 06′	1496
Os 29	06—27	2000～2054	06—28	0800～0854	N 48° 23′	W 172° 30′	1499

Table 1. (Continued)

Station	Ship's mean time		Greenwich mean time		Position		Maximum depth of cast (m)
	Date	Hour	Date	Hour	Latitude	Longitude	
Os 30	06—28	1150～1258	06—28	2350～0058	N 49° 29′	W 171° 59′	1432
Os 31	06—28	2000～2139	06—29	0800～0939	N 50° 25′	W 171° 59′	1179
Os 32	06—29	1205～1300	06—30	0005～0100	N 51° 30′	W 172° 00′	1460
Os 33	06—29	2250～2353	06—30	1050～1153	N 52° 50′	W 172° 00′	1490
Os 34	06—30	0900～1028	06—30	2100～2228	N 54° 10′	W 172° 00′	1415
Os 35	06—30	2015～2110	07—01	0815～0910	N 54° 44′	W 170° 14′	1343
Os 36	07—01	1246～1337	07—02	0046～0137	N 55° 11′	W 168° 30′	1445
Os 37	07—01	2100～2120	07—02	0900～0920	N 55° 40′	W 167° 06′	127
Os 38	07—03	1400～1410	07—04	0200～0210	N 56° 12′	W 166° 30′	80
Os 39	07—06	1810～1850	07—07	0610—0650	N 55° 27′	W 164° 38′	105
Os 40	07—08	1556～1705	07—09	0356～0505	N 57° 01′	W 174° 30′	1451
Os 41	07—09	0127～0229	07—09	1327～1429	N 57° 00′	W 176° 22′	1479
Os 42	07—09	1313～1415	07—10	0113～0215	N 57° 00′	W 179° 10′	1480
Os 43	07—11	1100～1210	07—11	0000～0110	N 57° 38′	E 177° 59′	188
Os 44	07—11	2005～2048	07—11	0905～0948	N 57° 32′	E 176° 30′	383
Os 45	07—12	2008～2108	07—12	0908～1008	N 56° 56′	E 174° 30′	1213
Os 46	07—13	1412～1527	07—13	0312～0427	N 58° 19′	E 174° 50′	1156
Os 47	07—14	0307～0405	07—13	1607～1705	N 58° 54′	E 172° 07′	980
Os 48	07—14	1104～1145	07—14	0005～0045	N 59° 19′	E 170° 20′	306
Os 49	07—14	2031～2130	07—14	0931～1030	N 58° 18′	E 169° 58′	1162
Os 50	07—15	1111～1247	07—15	0011～0147	N 57° 19′	E 169° 58′	1035
Os 51	07—15	2040～2159	07—15	0940～1059	N 56° 22′	E 169° 58′	1500
Os 52	07—16	1105～1204	07—16	0005～0104	N 56° 20′	E 168° 03′	1471
Os 53	07—16	1931～2049	07—16	0831～0949	N 56° 20′	E 166° 18′	1317
Os 54	07—17	0337～0447	07—16	1737～1847	N 56° 29′	E 164° 21′	1410
Os 55	07—17	1306～1428	07—17	0306～0428	N 55° 29′	E 164° 20′	1432
Os 56	07—17	2003～2110	07—17	1003～1110	N 54° 55′	E 164° 20′	1492
Os 57	07—18	1148～1313	07—18	0148～1313	N 53° 54′	E 164° 16′	1258
Os 58	07—18	1950～2053	07—18	0950～1058	N 53° 02′	E 164° 16′	1492

Table 1. (Continued)

Station	Ship's mean time		Greenwich mean time		Position		Maximum depth of cast (m)
	Date	Hour	Date	Hour	Latitude	Longitude	
Os 59	07—19	1120～1257	07—19	0120～0257	N 51° 59′	E 164° 04′	1296
Os 60	07—19	1930～2113	07—19	0930～1113	N 51° 02′	E 164° 18′	1416
Os 61	07—20	1125～1232	07—20	0125～0232	N 51° 11′	E 162° 48′	1448
Os 62	07—20	1948～2110	07—20	0948～1110	N 51° 11′	E 161° 23′	1373
Os 63	07—21	1140～1248	07—21	0140～0248	N 51° 15′	E 159° 53′	1306
Os 64	07—21	1938～2029	07—21	0938～1029	N 50° 35′	E 159° 00′	1455
Os 65	07—22	1148～1256	07—22	0148～0256	N 49° 35′	E 159° 00′	1380
Os 66	07—22	1956～2108	07—22	0956～1108	N 48° 35′	E 159° 00′	1193
Os 67	07—23	0753～0900	07—22	2153～2300	N 47° 43′	E 157° 10′	1350

4. Items of Observations and Procedure at Sea
(調査項目及海上作業)

Meteorogical observatoins: (気象観測)

Every three-hour interval, covering the whole course. Data are not presented here in order to save the printing cost; they will gladly be supplied by direct communication upon request.

Hydrographic cast: (海洋観測)

At 67 stations, covering depths from the surface down to 1500 m or less.

Analyses of water samples: (試水分析)

Dissolved oxygen was measured aboard, at 35 hydrographic stations, covering the depths from the surface to about 1500 m.

Chlorinity was meaured by titration method after returning from the cruise, on samples taken at all depths and stations.

Measurement of radio-activity of natural sea water (自然海水の放射能測定)

A liter of the surface water was sampled at every hydrographic stations.

Sampling of marine bacteria (海洋細菌採集)

Sample water was collected with G-Z sampler from 12 different depths from the surface to about 1000 m depth at 20 stations.

Plankton sampling (プランクトン採集)

Vertical haul with a fine mesh net, 30 cm × 150 cm, XX 13, from approximately 100 m depth, once at each hydrographic station.

Vertical haul with a NORPAC standard net, 45 cm × 180 cm, GG 54, from approximately 150 m depth, once at each hydrographic station.

Horizontal tow with a fish larva net, 130 cm × 450 cm, stramin, through the surface layer for ten minutes at low speed, at every hydrographic station as well as at about one hour after sunset daily while underway.

Fish larva sampling (稚魚採集)

From the mixed plankton samples collected with a 130 cm fish larva net.

Salmon gill net set (鮭鱒流網)

Eleven operations were carried out at different locations. Specimens were put to the measurement of biological characters, observation on maturity, sampling of scales for later examination.

Trawling (トロール)

Eleven operations of trawling were carried out in Bristol Bay.

Eye-observations of sea-birds, whales, etc. (海鳥鯨等目視観察)

5. Date on Temperature, Salinity and Computed Dynamic Depths
(温度塩分及びダイナミックデプス計算値)

Shallow casts upper 150 meters were carried out with a manual winch and deep casts below 150 meters with an electric winch. In the shallow cast Nansen bottles carried two protected reversing thermometers. In the deep cast every bottle carried an unprotected reversing thermometer with two protected thermometers.

The depths of observation in the shallow cast (150 meters or less) were calculated from measured wire angle, and in the deep cast the depths were determined from wire angle and curves of wire length minus thermometric depth versus wire length.

The interpolated values of temperature and chlorinity were read from temperature-depth curve.

Double titration for chlorinity determination was carried out at the Hokkaido Regional Fisheries Research Laboratory in Yoichi.

Calculation of depths, interpolation of data, and computation of dynamic depth were made by H. Koto at the Oceanographic Laboratory of the University.

Table 2. Data on temperature, salinity and computed dynamic depth in the "Oshoro Maru" cruise 44 to the Bering Sea in June–July 1959

Station Os 1

Date June 9, 1959 Time 1640～1819 (S.M.T.) Latitude 42°00′N Longitude 146°00′E
Wind NNW 3 Weather f Air Temp. 10.6°C Sea NW 1 Swell SW 1 Col. 4 Tr. 15m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	Δst (cl/ton)	ΔD (dyn.m)
0	10.6	18.35	33.15	0	10.6	18.35	33.15	25.43	256	0
10	10.40	18.35	33.15	10	10.40	18.35	33.15	25.48	251	0.025
20	9.43	18.40	33.24	20	9.43	18.40	33.24	25.69	231	0.049
30	7.88	18.43	33.30	30	7.88	18.43	33.30	25.99	203	0.072
50	5.23	18.44	33.31	50	5.28	18.44	33.31	26.19	184	0.111
73	4.10	18.49	33.40	75	4.07	18.49	33.40	26.53	152	0.154
97	3.97	18.51	33.44	100	3.93	18.51	33.44	26.57	148	0.192
145	2.85	18.52	33.46	150	2.85	18.52	33.46	26.70	135	0.263
193	2.92	18.60	33.60	200	2.93	18.61	33.62	26.81	125	0.329
275	2.94	18.67	33.73	300	3.03	18.70	33.78	26.94	113	0.449
366	3.61	18.81	33.98	400	3.59	18.84	34.04	27.07	100	0.558
460	3.52	—	—	500	3.51	18.88	34.11	27.15	93	0.658
550	3.50	—	—	600	3.42	18.93	34.20	27.23	85	0.751
737	3.12	18.98	34.29	800	3.02	19.00	34.33	27.37	72	0.917
917	2.88	19.04	34.40	1000	2.82	19.04	34.40	27.44	65	1.065
1100	2.77	19.05	34.42	1200	2.64	19.08	34.47	27.51	59	1.202
1375	2.36	19.14	34.58	1500						

Station Os 2

Date June 10, 1959 Time 0506～0614 (S.M.T.) Latitude 42°55′N Longitude 147°47′E
Wind NE 4 Weather o Air Temp. 8.3°C Sea NE 4 Swell NNE 1 Col. 5 Tr. 7m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	Δst (cl/ton)	ΔD (dyn.m)
0	8.3	18.39	33.22	0	8.3	18.39	33.22	25.85	216	0
10	8.48	18.41	33.26	10	8.48	18.41	33.26	25.86	215	0.022
19	7.37	18.36	33.17	20	7.08	18.36	33.17	25.99	203	0.043
29	4.48	18.32	33.10	30	4.39	18.32	33.10	26.25	178	0.062
49	3.58	18.32	33.10	50	3.49	18.32	33.10	26.35	169	0.097
74	1.71	18.35	33.15	75	1.67	18.35	33.15	26.53	152	0.137
95	0.96	18.40	33.24	100	0.93	18.41	33.26	26.68	137	0.173
143	1.83	18.54	33.50	150	1.92	18.56	33.53	26.83	123	0.238
190	2.29	18.61	33.62	200	2.33	18.61	33.62	26.87	119	0.299
283	2.71	18.71	33.80	300	2.80	18.73	33.84	27.00	107	0.413
377	3.06	18.85	34.05	400	3.11	18.86	34.07	27.16	92	0.514
471	3.19	18.86	34.07	500	3.17	18.87	34.09	27.17	91	0.608
566	3.05	18.92	34.18	600	3.02	18.93	34.20	27.27	81	0.698
754	2.90	18.93	34.20	800	2.79	18.94	34.22	27.30	79	0.867
943	2.54	19.04	34.40	1000	2.53	19.06	34.43	27.49	61	1.019
1134	2.53	19.09	34.49	1200	2.50	19.10	34.51	27.55	55	1.149
1419	2.33	19.11	34.52							

Table 2. (Continued)

Station Os 3

Date June 10, 1959 Time 1924~2054 (S.M.T.) Latitude 44°04′N Longitude 149°40′E
Wind NE 4 Weather o Air Temp. 3.8°C Sea NE 4 Swell NNE 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	7.2	18.40	33.24	0	7.2	18.40	33.24	26.03	199	0
10	7.28	18.37	33.19	10	7.28	18.37	33.19	25.97	205	0.020
19	5.66	18.41	33.26	20	5.50	18.41	33.26	26.26	177	0.039
29	4.11	18.41	33.26	30	4.06	18.41	33.26	26.42	162	0.056
48	3.15	18.41	33.26	50	3.05	18.41	33.26	26.52	153	0.088
72	2.29	18.41	33.26	75	2.28	18.41	33.26	26.58	147	0.126
93	2.38	18.47	33.37	100	2.50	18.49	33.40	26.68	137	0.162
139	3.28	18.56	33.53	150	3.28	18.58	33.57	26.74	132	0.230
185	2.93	18.63	33.66	200	2.68	18.61	33.62	26.84	122	0.294
260	1.89	18.59	33.59	300	1.98	18.64	33.68	26.94	113	0.413
346	2.19	18.70	33.78	400	2.52	18.75	33.87	27.05	102	0.522
433	2.90	18.78	33.93	500	3.14	18.84	34.04	27.13	95	0.623
520	3.19	18.86	34.07	600	3.15	18.92	34.18	27.24	84	0.716
693	3.06	18.96	34.25	800	2.91	18.98	34.29	27.35	74	0.883
866	2.84	19.00	34.33	1000	2.79	19.04	34.40	27.44	65	1.033
1040	2.78	19.06	34.43	1200	2.60	19.08	34.47	27.52	58	1.169
1302	2.47	19.10	34.51							

Station Os 4

Date June 11, 1959 Time 0830~1030 (S.M.T.) Latitude 45°03′N Longitude 151°32′E
Wind N 3 Weather o Air Temp. 3.9°C Sea N 3 Swell NNE 1 Col. 5 Tr. 10m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	4.1	18.28	33.03	0	4.1	18.28	33.03	26.23	180	0
9	4.03	18.28	33.03	10	4.01	18.28	33.03	26.24	179	0.018
18	3.53	18.30	33.06	20	3.33	18.31	33.08	26.35	169	0.035
28	2.54	18.35	33.15	30	2.47	18.35	33.15	26.48	156	0.051
46	1.95	18.35	33.15	50	1.87	18.35	33.15	26.53	152	0.082
70	1.44	18.37	33.19	75	1.38	18.38	33.21	26.60	145	0.119
91	1.24	18.42	33.28	100	1.23	18.44	33.31	26.70	135	0.154
137	1.97	18.55	33.51	150	1.02	18.57	33.55	26.83	123	0.219
183	2.06	18.62	33.64	200	2.22	18.66	33.71	26.95	112	0.278
265	3.29	18.80	33.96	300	3.25	18.82	34.00	27.09	98	0.384
353	3.09	18.84	34.04	400	3.13	18.86	34.07	27.16	92	0.481
441	3.17	18.87	34.09	500	3.12	18.91	34.16	27.23	85	0.572
539	3.07	18.93	34.20	600	2.97	18.94	34.22	27.29	80	0.658
706	2.85	18.95	34.24	800	2.85	18.96	34.25	27.33	76	0.822
883	2.85	18.97	34.27	1000	2.75	18.99	34.31	27.37	72	0.981
1059	2.66	19.00	34.33	1200	2.48	19.05	34.42	27.48	62	1.128
1324	2.31	19.10	34.51							

Table 2. (Continued)

Station Os 5

Date June 11,1959 Time 2005～2115 (S.M.T.) Latitude 46°00′N Longitude 153°15′E
Wind WNW 2 Weather o Air Temp. 3.3°C Sea WNW 2 Swell E 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	4.8	18.27	33.01	0	4.8	18.27	33.01	26.14	189	0
10	4.78	18.27	33.01	10	4.78	18.27	33.01	26.14	189	0.019
19	4.59	18.27	33.01	20	4.50	18.27	33.01	26.17	186	0.038
29	3.61	18.29	33.04	30	3.57	18.29	33.04	26.30	173	0.056
49	2.88	18.31	33.08	50	2.84	18.31	33.08	26.39	165	0.090
74	1.86	18.35	33.15	75	1.83	18.35	33.15	26.53	152	0.130
98	1.37	18.37	33.19	100	1.34	18.37	33.19	26.60	145	0.167
147	2.07	18.59	33.59	150	2.15	18.61	33.62	26.88	118	0.233
187	3.11	18.72	33.82	200	3.20	18.74	33.86	26.97	110	0.291
273	3.29	18.81	33.98	300	3.33	18.83	34.02	27.09	98	0.396
364	3.42	18.87	34.09	400	3.39	18.89	34.13	27.17	91	0.492
456	3.29	18.92	34.18	500	3.20	18.93	34.20	27.25	83	0.582
547	3.11	18.95	34.24	600	3.04	18.97	34.27	27.32	77	0.666
731	2.93	—	—	800	2.85	19.03	34.38	27.43	66	0.818
915	2.71	19.06	34.43	1000	2.62	19.07	34.45	27.50	60	0.955
1102	2.49	19.09	34.49	1200	2.37	19.10	34.51	27.56	54	1.081
1386	2.17	19.12	34.54							

Station Os 6

Date June 12,1959 Time 0835～1001 (S.M.T.) Latitude 46°35′N Longitude 154°50′E
Wind SW 4 Weather o Air Temp. 3.5°C Sea SW 4 Swell W 1 Col. 6 Tr. 7m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	3.9	18.33	33.12	0	3.9	18.33	33.12	26.32	172	0
10	3.86	18.32	33.10	10	3.86	18.32	33.10	26.31	173	0.017
19	3.67	18.32	33.10	20	3.60	18.32	33.10	26.33	171	0.034
29	2.46	18.36	33.17	30	2.38	18.36	33.17	26.50	154	0.050
48	1.60	18.37	33.19	50	1.57	18.37	33.19	26.55	150	0.080
72	1.49	18.41	33.26	75	1.49	18.41	33.26	26.64	141	0.116
88	1.52	18.41	33.26	100	1.56	18.43	33.30	26.66	139	0.151
132	1.65	18.51	33.44	150	1.70	18.53	33.48	26.80	126	0.218
177	1.77	18.55	33.51	200	2.20	18.61	33.62	26.87	119	0.290
204	2.26	18.61	33.62	300	2.25	18.68	33.75	26.97	110	0.406
273	2.11	18.65	33.69	400	3.15	18.81	33.98	27.08	99	0.512
341	2.50	18.73	33.84	500	3.22	18.83	34.02	27.10	98	0.613
361	2.90	18.78	33.93	600	3.25	18.93	34.20	27.24	84	0.708
490	3.22	18.82	34.00	800	2.89	19.00	34.33	27.38	71	0.872
619	3.25	18.95	34.24	1000	(2.60)	(19.06)	(34.43)	(27.49)	(61)	(1.015)
977	2.63	19.05	34.42							

Table 2. (Continued)

Station Os 7

Date June 12, 1959 Time 2304～0037 (S.M.T.) Latitude 48°00′N Longitude 155°59′E
Wind WSW 4 Weather o Air Temp. 3.2°C Sea WSW 4 Swell WSW 2 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	4.3	18.32	33.10	0	4.3	18.32	33.10	26.26	177	0
10	4.21	18.32	33.10	10	4.21	18.32	33.10	26.27	176	0.018
19	4.20	18.32	33.10	20	4.20	18.32	33.10	26.27	176	0.036
29	4.19	18.33	33.12	30	4.17	18.33	33.12	26.29	174	0.054
49	3.13	18.33	33.12	50	3.11	18.33	33.12	26.40	164	0.088
74	2.52	18.33	33.12	75	2.50	18.33	33.12	26.45	159	0.128
90	2.09	18.33	33.12	100	2.03	18.34	33.13	26.50	154	0.167
135	2.28	18.60	33.60	150	2.58	18.65	33.69	26.90	117	0.235
180	3.32	18.71	33.80	200	3.45	18.74	33.86	26.95	112	0.293
254	3.48	18.79	33.95	300	3.41	18.82	34.00	27.07	100	0.401
339	3.38	18.85	34.05	400	3.33	18.86	34.07	27.14	94	0.500
679	3.12	18.94	34.22	500	3.24	18.88	34.11	27.18	90	0.595
849	2.91	18.99	34.31	600	3.18	18.92	24.18	27.24	84	0.686
1020	2.63	19.03	34.38	800	3.07	18.98	34.29	27.33	76	0.855
1280	2.24	19.09	34.49	1000	2.67	19.02	34.36	27.43	66	1.008
				1200	2.37	19.07	34.45	27.53	57	1.143

Station Os 8

Date June 13, 1959 Time 0957～1148 (S.M.T.) Latitude 48°00′N Longitude 159°13′E
Wind ENE 2 Weather m Air Temp. 4.4°C Sea E 2 Swell W 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	3.9	18.28	33.03	0	3.9	18.28	33.03	26.24	179	0
10	3.34	18.28	33.03	10	3.34	18.28	33.03	26.30	173	0.018
20	3.24	18.29	33.04	20	3.24	18.29	33.04	26.33	171	0.035
30	3.24	18.29	33.04	30	3.24	18.29	33.04	26.33	171	0.052
50	1.71	18.29	33.04	50	1.71	18.29	33.04	26.45	159	0.085
75	1.06	18.30	33.06	75	1.06	18.30	33.06	26.51	154	0.124
100	0.84	18.31	33.08	100	0.84	18.31	33.08	26.54	151	0.162
150	0.96	—	—	150	0.96	18.34	33.13	26.58	147	0.237
200	1.75	18.48	33.39	200	1.75	18.48	33.39	26.72	134	0.308
294	2.90	18.58	33.57	300	2.96	18.59	33.59	26.78	128	0.440
394	3.49	18.76	33.89	400	3.50	18.77	33.91	26.99	108	0.560
493	—	18.84	34.04	500	3.49	18.84	34.04	27.09	98	0.666
593	3.46	18.84	34.04	600	3.44	18.84	34.04	27.10	98	0.768
792	3.22	18.97	34.27	800	3.20	18.97	34.27	27.31	78	0.954
991	2.90	19.01	34.34	1000	2.89	19.01	34.34	27.40	69	1.113
1189	2.65	19.06	34.43	1200	2.64	19.06	34.43	27.49	61	1.256
1488	2.37	19.09	34.49	1500	(2.36)	(19.09)	(34.49)	(27.55)	(55)	(1.453)

Table 2. (Continued)

Station Os 9

Date June 13, 1959 Time 2211～2320 (S.M.T.) Latitude 48°00′N Longitude 161°27′E
Wind NE 3 Weather f Air Temp. 5.3°C Sea NE 3 Swell NE 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	4.8	18.31	33.08	0	4.8	18.31	33.08	26.20	183	0
10	4.72	18.31	33.08	10	4.72	18.31	33.08	26.21	182	0.018
20	4.51	18.31	33.08	20	4.51	18.31	33.08	26.24	179	0.036
30	4.38	18.32	33.10	30	4.38	18.32	33.10	26.27	176	0.054
50	2.48	18.31	33.08	50	2.48	18.31	33.08	26.41	163	0.088
75	2.04	18.34	33.13	75	2.04	18.34	33.13	26.50	154	0.128
96	1.77	18.35	33.15	100	1.75	18.35	33.15	26.55	150	0.166
144	2.34	18.56	33.53	150	2.47	18.60	33.60	26.84	122	0.234
192	3.18	18.74	33.86	200	3.21	18.75	33.87	26.98	109	0.293
282	3.28	18.80	33.96	300	3.30	18.81	33.98	27.06	101	0.400
376	3.34	18.86	34.07	400	3.32	18.88	34.11	27.18	90	0.498
470	3.20	18.91	34.16	500	3.19	18.92	34.18	27.22	86	0.589
564	3.17	18.95	34.24	600	3.13	18.96	34.25	27.35	74	0.673
740	2.86	18.99	34.31	800	2.78	19.01	34.34	27.40	69	0.825
917	2.61	19.03	34.38	1000	(2.57)	(19.03)	(34.38)	(27.44)	(65)	(0.970)

Station Os 10

Date June 14, 1959 Time 1605～1810 (S.M.T.) Latitude 47°42′N Longitude 163°31′E
Wind N 3 Weather o Air Temp. 4.9°C Sea N 3 Swell NE 1 Col. 4 Tr. 11m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	5.5	18.31	33.08	0	5.5	18.31	33.08	26.12	191	0
10	5.48	18.30	33.06	10	5.48	18.30	33.06	26.11	192	0.019
20	5.37	18.31	33.08	20	5.37	18.31	33.08	26.13	190	0.038
30	5.33	18.31	33.08	30	5.33	18.31	33.08	26.14	189	0.057
50	4.21	18.33	33.12	50	4.21	18.33	33.12	26.29	174	0.093
75	3.87	18.36	33.17	75	3.87	18.36	33.17	26.36	168	0.136
97	3.49	18.41	33.26	100	3.40	18.42	33.28	26.50	154	0.177
194	2.99	18.62	33.64	150	2.90	18.56	33.53	26.74	132	0.249
246	3.06	18.66	33.71	200	3.00	18.62	33.64	26.82	124	0.314
328	3.18	18.74	33.86	300	3.12	18.64	33.68	26.84	122	0.438
447	3.34	18.85	34.05	400	3.27	18.79	33.95	27.04	103	0.552
693	2.99	—	—	500	3.34	18.85	34.05	27.12	96	0.654
969	2.77	19.02	34.36	600	3.17	18.91	34.16	27.23	85	0.748
1042	2.65	19.04	34.40	800	2.84	19.00	34.33	27.38	71	0.913
1310	2.52	19.08	34.47	1000	2.68	19.04	34.40	27.45	64	1.059
				1200	2.57	19.07	34.45	27.51	59	1.195

Table 2. (Continued)

Station Os 11

Date June 15,1959 Time 1815~1928 (S.M.T.) Latitude 48°00′N Longitude 165°46′E
Wind WNW 4 Weather b Air Temp. 5.4°C Sea WNW 4 Swell W 2 Col. 4 Tr. 13m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	5.1	18.33	33.12	0	5.1	18.33	33.12	26.19	184	0
10	5.10	18.30	33.06	10	5.10	18.30	33.06	26.15	188	0.019
19	4.96	18.30	33.06	20	4.96	18.30	33.06	26.17	186	0.038
29	4.99	18.31	33.08	30	4.97	18.31	33.08	26.19	184	0.057
49	3.91	18.31	33.08	50	3.88	18.31	33.08	26.30	173	0.093
74	3.12	18.31	33.08	75	3.09	18.31	33.08	26.36	168	0.135
94	2.69	18.31	33.08	100	2.65	18.31	33.08	26.40	164	0.177
141	2.87	18.49	33.40	150	2.95	18.53	33.48	26.70	135	0.252
188	3.30	18.70	33.78	200	3.33	18.72	33.82	26.95	112	0.315
278	3.39	18.77	33.91	300	3.38	18.79	33.95	27.03	104	0.425
371	3.36	18.83	34.02	400	3.34	18.84	34.04	27.11	97	0.528
464	3.31	18.87	34.09	500	3.28	18.87	34.09	27.16	92	0.625
557	3.22	18.87	34.09	600	3.19	18.88	34.11	27.19	89	0.719
743	3.01	—	—	800	2.93	18.97	34.27	27.35	74	0.891
932	2.73	19.02	34.36	1000	2.68	19.03	34.38	27.44	65	1.041
1121	2.53	19.05	34.42	1200	2.47	19.06	34.43	27.50	60	1.179
1410	2.27	19.09	34.49							

Station Os 12

Date June 16,1959 Time 0620~0704 (S.M.T.) Latitude 48°00′N Longitude 168°00′E
Wind W 3 Weather f Air Temp. 4.0°C Sea NW 3 Swell W 2 Col. × Tr. 13m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	4.7	18.29	33.04	0	4.7	18.29	33.04	26.19	184	0
10	4.59	18.29	33.04	10	4.59	18.29	33.04	26.20	183	0.018
20	4.61	18.29	33.04	20	4.61	18.29	33.04	26.19	184	0.036
30	4.53	18.30	33.06	30	4.53	18.30	33.06	26.22	181	0.054
49	3.37	18.33	33.12	50	3.34	18.33	33.12	26.38	166	0.089
74	2.67	18.33	33.12	75	2.64	18.33	33.12	26.45	159	0.130
82	2.39	18.34	33.13	100	3.38	18.41	33.26	26.59	146	0.168
123	2.50	18.55	33.51	150	2.67	18.60	33.60	26.84	122	0.236
164	2.74	18.62	33.64	200	2.94	18.66	33.71	26.89	117	0.297
201	2.95	18.66	33.71	300	3.28	18.79	33.95	27.06	101	0.408
268	3.20	18.76	33.89	400	3.38	18.86	34.07	27.14	94	0.507
236	3.36	18.81	33.98	500	3.27	18.90	34.15	27.20	88	0.601
405	3.38	18.87	34.09	600	3.12	18.94	34.22	27.28	80	0.689
546	3.20	18.92	34.18	800	2.87	18.98	34.29	27.36	73	0.851
690	3.00	18.97	34.27	1000	2.63	19.02	34.36	27.44	65	1.000
835	2.81	18.99	34.31	1200	2.43	19.06	34.43	27.51	59	1.136
1272	2.36	19.07	34.45							

Table 2. (Continued)

Station Os 13

Date June 16, 1959 Time 1630～1740 (S.M.T.) Latitude 48°00′N Longitude 170°00′E
Wind SW 4 Weather o Air Temp. 5.7°C Sea SW 4 Swell SW 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	5.4	18.22	32.92	0	5.4	18.22	32.92	26.02	200	0
9	5.23	18.22	32.92	10	5.23	18.22	32.92	26.02	200	0.020
18	5.19	18.23	32.94	20	5.19	18.23	32.94	26.04	198	0.040
28	5.17	18.23	32.94	30	5.17	18.23	32.94	26.05	197	0.060
46	5.13	18.25	32.97	50	5.00	18.26	32.99	26.10	192	0.099
69	3.67	18.27	33.01	75	3.63	18.27	33.01	26.26	177	0.145
97	3.57	18.27	33.01	100	3.55	18.27	33.01	26.27	176	0.189
145	3.23	18.53	33.48	150	3.23	18.56	33.53	26.72	134	0.267
193	3.34	18.69	33.77	200	3.37	18.70	33.78	26.90	117	0.331
271	3.46	18.76	33.89	300	3.46	18.78	33.93	27.04	103	0.443
361	3.47	18.84	34.04	400	3.46	18.86	34.07	27.14	94	0.544
449	3.45	18.88	34.11	500	3.39	18.91	34.16	27.24	84	0.636
531	3.36	18.92	34.18	600	3.26	18.95	34.24	27.28	80	0.722
694	3.11	18.98	34.29	800	2.91	19.02	34.36	27.41	68	0.879
859	2.83	19.03	34.38	1000	2.71	19.04	34.40	27.46	63	1.021
1022	2.69	19.04	34.40							

Station Os 14

Date June 17, 1959 Time 0608～0722 (S.M.T.) Latitude 49°40′N Longitude 170°00′E
Wind SW 5 Weather o Air Temp. 5.4°C Sea SW 5 Swell SW 1 Col. 5 Tr. 11m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	5.6	18.22	32.92	0	5.6	18.22	32.92	25.98	204	0
9	5.48	18.23	32.94	10	5.48	18.23	32.94	26.01	201	0.020
18	5.48	18.24	32.95	20	5.47	18.24	32.95	26.02	200	0.040
28	5.41	18.24	32.95	30	5.40	18.24	32.95	26.03	199	0.060
46	5.36	18.24	32.95	50	5.24	18.25	32.97	26.06	196	0.100
69	3.81	18.29	33.04	75	3.54	18.32	33.10	26.34	170	0.146
72	3.57	18.31	33.08	100	3.61	18.42	33.28	26.48	156	0.187
108	3.68	18.57	33.55	150	3.95	18.78	33.93	26.95	112	0.255
144	3.95	18.78	33.95	200	3.84	18.81	33.98	27.01	106	0.310
185	3.88	18.78	33.95	300	3.73	18.88	34.11	27.12	96	0.414
248	3.76	18.87	34.09	400	3.59	18.91	34.16	27.19	89	0.510
309	3.72	18.88	34.11	500	3.42	18.94	34.22	27.24	84	0.600
370	3.62	18.90	34.15	600	3.23	19.00	34.33	27.34	75	0.683
498	3.42	18.94	34.22	800	2.94	19.03	34.38	27.42	67	0.834
628	3.18	19.01	34.34	1000	2.68	19.05	34.42	27.46	63	0.975
770	2.98	19.03	34.38							
1003	2.68	19.05	34.42							

Table 2. (Continued)

Station Os 15

Date June 18,1959 Time 0915~1127 (S.M.T.) Latitude 51°43′N Longitude 171°20′E
Wind SW 4 Weather o Air Temp. 6.3°C Sea SW 4 Swell SSW 3 Col. 5 Tr. 13m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	5.7	18.21	32.90	0	5.7	18.21	32.90	25.96	206	0
10	5.60	18.21	32.90	10	5.60	18.21	32.90	25.96	206	0.021
19	5.65	18.21	32.90	20	5.65	18.21	32.90	25.96	206	0.042
29	5.61	18.21	32.90	30	5.57	18.21	32.90	25.97	205	0.063
48	3.55	18.27	33.01	50	3.48	18.28	33.03	26.29	174	0.101
72	2.86	18.31	33.08	75	2.80	18.31	33.08	26.40	164	0.143
91	2.57	18.33	33.12	100	2.56	18.35	33.15	26.47	157	0.183
136	2.75	18.51	33.44	150	3.06	18.60	33.60	26.79	127	0.255
182	3.70	18.74	33.56	200	3.69	18.76	33.89	26.95	112	0.316
241	3.57	18.78	33.95	300	3.59	18.82	34.00	27.05	102	0.425
321	3.59	18.84	34.04	400	3.57	18.88	34.11	27.14	94	0.526
401	3.57	18.88	34.11	500	3.52	18.93	34.20	27.21	87	0.620
482	3.53	18.92	34.18	600	3.39	18.98	34.29	27.30	79	0.707
650	—	18.99	34.31	800	2.97	19.00	34.33	27.37	81	0.876
837	2.90	19.01	34.34	1000	2.70	19.05	34.42	27.61	49	1.017
1020	2.67	19.05	34.42	1200	2.39	19.08	34.47	27.68	43	1.121
1295	2.24	19.10	34.51							

Station Os 16

Date June 18,1959 Time 2359~0107 (S.M.T.) Latitude 53°14′N Longitude 171°20′E
Wind SSW 2 Weather o Air Temp. 5.9°C Sea SE 2 Swell SSW 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	5.7	18.19	32.86	0	5.7	18.19	32.86	25.91	211	0
10	5.71	18.20	32.88	10	5.71	18.20	32.88	25.94	208	0.021
20	5.69	18.20	32.88	20	5.69	18.20	32.88	25.94	208	0.041
30	5.62	18.20	32.88	30	5.62	18.20	32.88	25.95	207	0.062
50	3.82	18.30	33.06	50	3.82	18.30	33.06	26.29	174	0.100
75	3.74	18.39	33.22	75	3.74	18.39	33.22	26.42	162	0.142
98	3.79	18.39	33.22	100	3.79	18.39	33.22	26.42	162	0.183
147	3.91	18.47	33.37	150	3.93	18.48	33.39	26.53	152	0.262
196	4.26	18.62	33.64	200	4.26	18.63	33.66	26.70	135	0.335
280	4.10	18.76	33.89	300	4.08	18.78	33.93	26.94	113	0.461
374	3.93	18.83	34.02	400	3.89	18.84	34.04	27.05	102	0.571
467	3.79	18.87	34.09	500	3.73	18.90	34.15	27.15	93	0.672
560	3.66	18.96	34.25	600	3.59	18.98	34.29	27.28	80	0.763
747	3.35	19.00	34.33	800	3.29	19.00	34.33	27.34	75	0.928
934	3.15	19.02	34.36	1000	3.03	19.03	34.38	27.41	68	1.084
1122	2.81	19.05	34.42	1200	2.71	19.06	34.43	27.48	62	1.228
1406	2.45	19.09	34.49							

Table 2. (Continued)

Station Os 17

Date June 19, 1959 Time 1243~1400 (S.M.T.) Latitude 55°00′N Longitude 171°20′E
Wind ESE 3 Weather r Air Temp. 6.0°C Sea ESE 3 Swell SSW 1 Col. 5 Tr. 13m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	5.4	18.32	33.10	0	5.4	18.32	33.10	26.15	188	0
10	5.26	—	—	10	5.26	18.33	33.12	26.18	185	0.019
19	5.23	18.31	33.08	20	5.22	18.34	33.13	26.20	183	0.037
29	5.16	18.35	33.15	30	5.12	18.35	33.15	26.21	182	0.055
49	4.04	18.36	33.17	50	4.01	18.36	33.17	26.34	170	0.090
74	3.29	18.37	33.19	75	3.25	18.37	33.19	26.44	160	0.132
91	2.69	18.39	33.22	100	2.50	18.39	33.22	26.53	152	0.171
136	2.25	18.41	33.26	150	2.47	18.44	33.31	26.61	144	0.246
182	3.41	18.59	33.59	200	3.66	18.66	33.71	26.81	125	0.314
252	3.96	18.76	33.89	300	3.90	18.66	33.71	26.79	127	0.442
336	3.83	18.77	33.91	400	3.71	18.82	34.00	27.04	103	0.560
419	3.68	18.84	34.04	500	3.63	18.90	34.15	27.16	92	0.661
502	3.63	18.90	34.15	600	3.60	18.92	34.18	27.20	88	0.755
670	3.58	18.93	34.20	800	3.22	18.97	34.27	27.31	78	0.931
835	3.13	18.99	34.31	1000	2.90	19.01	34.34	27.40	69	1.090
1000	2.90	19.01	34.34							

Station Os 18

Date June 21, 1959 Time 1903~2047 (S.M.T.) Latitude 53°16′N Longitude 174°05′E
Wind SE 3 Weather o Air Temp. 5.2°C Sea SE 3 Swell SE 1 Col. 5 Tr. 13m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	5.9	18.21	32.90	0	5.9	18.21	32.90	25.93	209	0
10	5.80	18.21	32.90	10	5.80	18.21	32.90	25.94	208	0.021
20	5.70	18.21	32.90	20	5.70	18.21	32.90	25.95	207	0.042
30	5.75	18.21	32.90	30	5.75	18.21	32.90	25.95	207	0.063
50	4.33	18.28	33.03	50	4.33	18.28	33.03	26.20	183	0.102
75	2.99	18.37	33.19	75	2.99	18.37	33.19	26.46	158	0.145
96	2.75	18.41	33.26	100	2.72	18.41	33.26	26.54	151	0.184
144	2.24	18.42	33.28	150	2.30	18.44	33.31	26.62	143	0.258
192	4.27	18.71	33.80	200	4.30	18.73	33.84	26.85	121	0.325
286	3.96	18.79	33.95	300	3.89	18.80	33.96	26.99	108	0.442
388	3.66	18.88	34.11	400	3.63	18.88	34.11	27.13	95	0.546
477	3.60	18.89	34.13	500	3.57	18.89	34.13	27.15	93	0.643
583	3.47	18.93	34.20	600	3.45	18.93	34.20	27.22	86	0.736
777	3.16	18.96	34.25	800	3.13	18.96	34.25	27.30	79	0.910
972	2.90	19.02	34.36	1000	2.87	19.02	34.36	27.41	68	1.068
1149	2.71	19.06	34.43	1200	2.66	19.07	34.45	27.50	60	1.209
1462	2.33	19.10	34.51							

Table 2. (Continued)

Station Os 19

Date June 22,1959 Time 0740~0853 (S.M.T.) Latitude 53°16′N Longitude 176°50′E
Wind E 2 Weather o Air Temp. 5.0°C Sea E 2 Swell SE 1 Col. 5 Tr. 17m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	5.5	18.31	33.08	0	5.5	18.31	33.08	26.12	191	0
10	5.46	18.33	33.12	10	5.46	18.33	33.12	26.15	188	0.019
20	5.40	18.34	33.13	20	5.40	18.34	33.13	26.17	186	0.038
30	5.33	18.34	33.13	30	5.33	18.34	33.13	26.18	185	0.057
50	4.13	18.35	33.15	50	4.13	18.35	33.15	26.32	172	0.093
75	3.56	18.39	33.22	75	3.56	18.39	33.22	26.44	160	0.135
98	3.12	18.40	33.24	100	3.10	18.40	33.24	26.50	154	0.175
148	3.07	18.40	33.24	150	3.07	18.40	33.24	26.50	154	0.253
197	3.37	18.47	33.37	200	3.39	18.48	33.39	26.58	147	0.329
294	4.02	18.72	33.82	300	4.03	18.73	33.84	26.88	118	0.464
390	3.84	18.80	33.96	400	3.82	18.80	33.96	27.00	107	0.579
488	3.69	18.86	34.07	500	3.67	18.86	34.07	27.10	98	0.685
586	3.49	18.91	34.16	600	3.47	18.92	34.18	27.21	87	0.782
780	3.28	18.99	34.31	800	3.25	18.99	34.31	27.33	76	0.955
976	3.03	18.99	34.31	1000	3.00	19.00	34.33	27.37	72	1.116
1170	2.76	19.06	34.43	1200	2.72	19.07	34.45	27.50	60	1.262
1463	2.45	19.10	34.51							

Station Os 20

Date June 22,1959 Time 1803~1954 (S.M.T.) Latitude 53°16′N Longitude 179°04′E
Wind E 3 Weather o Air Temp. 5.4°C Sea E 3 Swell S 1 Col. 4 Tr. 13m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	6.2	18.27	33.01	0	6.2	18.27	33.01	25.98	204	0
10	5.64	18.27	33.01	10	5.64	18.27	33.01	26.04	198	0.020
20	5.42	18.29	33.04	20	5.42	18.29	33.04	26.10	192	0.040
30	5.19	18.26	32.99	30	5.19	18.26	32.99	26.09	193	0.059
50	5.05	18.26	32.99	50	5.05	18.26	32.99	26.10	192	0.098
75	3.51	18.32	33.10	75	3.51	18.32	33.10	26.34	170	0.144
96	3.31	18.32	33.10	100	3.29	18.32	33.10	26.36	168	0.187
144	2.94	18.42	33.28	150	2.93	18.44	33.31	26.57	148	0.267
192	3.41	18.57	33.55	200	3.50	18.59	33.59	26.73	133	0.338
262	3.97	18.73	33.84	300	3.96	18.77	33.91	26.94	113	0.463
350	3.93	18.81	33.98	400	3.88	18.83	34.02	27.04	103	0.574
439	3.82	18.84	34.04	500	3.65	18.86	34.07	27.10	98	0.678
525	3.58	18.87	34.09	600	3.43	18.91	34.16	27.20	88	0.775
698	3.34	18.95	34.24	800	3.19	18.97	34.27	27.31	78	0.950
869	3.12	18.98	34.29	1000	2.91	19.01	34.34	27.39	70	1.109
1039	2.86	19.02	34.36	1200	2.67	19.04	34.40	27.45	64	1.256
1296	2.55	19.04	34.40							

Table 2. (Continued)

Station Os 21

Date June 24,1959 Time 1735～1831 (S.M.T.) Latitude 53°16′N Longitude 178°32′E
Wind ENE 3 Weather f Air Temp. 4.9°C Sea ENE 3 Swell ENE 1 Col. 4 Tr. 15m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	5.8	18.33	33.12	0	5.8	18.33	33.12	26.11	192	0
10	5.74	18.33	33.12	10	5.74	18.33	33.12	26.12	191	0.019
20	5.60	18.34	33.13	20	5.60	18.34	33.13	26.15	188	0.038
30	5.32	18.34	33.13	30	5.32	18.37	33.19	26.22	181	0.056
50	4.54	18.37	33.19	50	4.54	18.39	33.22	26.34	170	0.081
75	3.66	18.39	33.22	75	3.66	18.39	33.22	26.43	161	0.123
95	3.28	18.46	33.35	100	3.20	18.46	33.35	26.57	148	0.162
143	2.87	18.46	33.35	150	2.87	18.47	33.37	26.62	148	0.235
190	3.13	18.55	33.51	200	3.20	18.56	33.53	26.72	134	0.305
274	3.72	18.63	33.66	300	3.80	18.67	33.73	26.81	125	0.437
367	3.85	18.76	33.89	400	3.80	18.79	33.95	26.99	108	0.557
460	3.70	18.83	34.02	500	3.64	18.84	34.04	27.07	100	0.665
552	3.57	18.86	34.07	600	3.50	18.88	34.11	27.15	93	0.766
740	3.32	18.92	34.18	800	3.22	18.94	34.22	27.26	82	0.951
928	3.02	18.98	34.29	1000	2.93	19.00	34.33	27.37	72	1.117
1119	2.78	19.02	34.36	1200	2.69	19.03	34.38	27.44	65	1.267
1403	2.48	19.05	34.42							

Station Os 22

Date June 24,1959 Time 1403～1524 (S.M.T.) Latitude 52°01′N Longitude 179°30′W
Wind ENE 2 Weather o Air Temp. 6.1°C Sea ENE 2 Swell NE 1 Col. 3 Tr. 25m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	5.0	18.36	33.17	0	5.0	18.36	33.17	26.25	178	0
10	4.82	18.37	33.19	10	4.82	18.37	33.19	26.29	174	0.018
20	4.76	18.37	33.19	20	4.76	18.37	33.19	26.29	174	0.035
30	4.79	18.38	33.21	30	4.79	18.38	33.21	26.30	173	0.052
50	4.02	18.42	33.28	50	4.02	18.42	33.28	26.42	162	0.086
75	3.93	18.42	33.28	75	3.93	18.42	33.28	26.45	159	0.126
94	3.84	18.43	33.30	100	3.83	18.44	33.31	26.49	155	0.166
140	3.82	18.48	33.39	150	3.82	18.51	33.44	26.58	147	0.232
187	3.85	18.58	33.57	200	3.85	18.59	33.59	26.70	135	0.303
238	3.86	18.62	33.64	300	3.86	18.68	33.77	26.82	124	0.435
318	3.86	18.70	33.78	400	3.73	18.79	33.95	26.99	108	0.554
397	3.74	18.79	33.95	500	3.38	18.85	34.05	27.12	96	0.659
476	3.64	19.00	34.33	600	3.29	18.88	34.11	27.17	91	0.756
598	3.71	19.78	34.93	800	3.09	18.96	34.25	27.31	78	0.934
657	3.20	19.91	34.16	1000						
935	3.00	19.01	34.34	1200						

Table 2. (Continued)

Station Os 23

Date June 24,1959 Time 2210~2336 (S.M.T.) Latitude 51°00′N Longitude 180°00′
Wind NE 3 Weather d Air Temp. 5.0°C Sea NE 3 Swell SE 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	6.7	18.09	32.68	0	6.7	18.09	32.68	25.04	293	0
10	6.62	18.09	32.68	10	6.62	18.09	32.68	25.05	292	0.029
20	5.88	18.11	32.72	20	5.88	18.11	32.72	25.79	222	0.055
30	5.44	18.27	33.01	30	5.44	18.27	33.01	26.08	194	0.076
50	4.26	18.27	33.01	50	4.26	18.27	33.01	26.20	183	0.114
75	3.75	18.31	33.08	75	3.75	18.31	33.08	26.30	173	0.159
99	4.40	18.50	33.42	100	4.42	18.50	33.42	26.50	154	0.200
149	4.38	18.65	33.69	150	4.38	18.66	33.71	26.73	133	0.273
199	4.20	18.78	33.93	200	4.20	18.78	33.93	26.93	114	0.336
250	4.12	18.78	33.93	300	4.02	18.79	33.95	26.97	110	0.450
334	3.95	18.81	33.98	400	3.85	18.84	34.04	27.05	102	0.559
419	3.83	18.85	34.05	500	3.67	18.89	34.13	27.16	92	0.660
500	3.67	18.89	34.13	600	3.47	18.92	34.18	27.21	87	0.754
660	—	18.94	34.22	800	3.35	18.97	34.27	27.29	80	0.931
815	3.34	—	—	1000	2.99	19.01	34.34	27.39	70	1.093
980	3.02	19.01	34.34	1200	2.69	19.05	34.42	27.48	62	1.238
1240	2.66	19.06	34.43							

Station Os 24

Date June 25,1959 Time 0632~0734 (S.M.T.) Latitude 50°00′N Longitude 180°00′
Wind ENE 3 Weather o Air Temp. 5.3°C Sea ENE 3 Swell SE 1 Col. × Tr. 18m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	6.3	18.16	32.81	0	6.3	18.16	32.81	25.81	220	0
10	6.18	18.14	32.77	10	6.18	18.14	32.77	25.80	221	0.022
19	6.14	18.14	32.77	20	6.13	18.14	32.77	25.80	221	0.044
29	5.93	18.21	32.90	30	5.92	18.21	32.90	25.93	209	0.066
49	5.69	18.20	32.88	50	5.66	18.21	32.90	25.96	206	0.108
74	3.97	18.28	33.03	75	3.95	18.28	33.03	26.24	179	0.156
98	3.65	18.30	33.06	100	3.65	18.31	33.08	26.31	173	0.200
147	4.14	18.70	33.78	150	4.14	18.71	33.80	26.83	123	0.275
196	3.92	18.81	33.98	200	3.90	18.81	33.98	27.00	107	0.334
293	3.79	18.83	34.02	300	3.79	18.83	34.02	27.04	103	0.441
391	3.72	18.89	34.13	400	3.71	18.90	34.15	27.15	93	0.541
489	3.56	18.92	34.18	500	3.52	18.91	34.16	27.19	89	0.635
587	3.34	18.97	34.27	600	3.31	18.93	34.20	27.23	85	0.726
782	3.07	19.02	34.36	800	3.03	18.97	34.27	27.32	77	0.897
979	2.73	19.04	34.40	1000	2.70	19.02	34.36	27.43	66	1.051
1176	2.47	19.09	34.49	1200	2.43	19.05	34.42	27.49	61	1.191
1470	2.21	19.12	34.54							

Table 2. (Continued)

Station Os 25

Date June 25,1959 Time 1506~1616 (S.M.T.) Latitude 49°00′N Longitude 180°00′
Wind ENE 3 Weather o Air Temp. 6.6°C Sea ENE 3 Swell ESE 1 Col. 4 Tr. 15m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	6.7	18.20	32.88	0	6.7	18.20	32.88	25.81	220	0
10	6.60	18.20	32.88	10	6.60	18.20	32.88	25.83	218	0.022
20	6.40	18.20	32.88	20	6.40	18.20	32.88	25.85	216	0.044
30	6.05	18.21	32.90	30	6.05	18.21	32.90	25.91	211	0.065
50	5.54	18.21	32.90	50	5.54	18.21	32.90	25.97	205	0.107
75	3.98	18.22	32.92	75	3.98	18.22	32.92	26.16	187	0.156
98	3.86	18.24	32.95	100	3.84	18.24	32.95	26.20	183	0.203
147	3.31	18.30	33.06	150	3.29	18.32	33.10	26.36	168	0.291
196	3.06	18.62	33.64	200	3.05	18.63	33.66	26.83	123	0.365
283	3.33	18.76	33.89	300	3.38	18.77	33.91	27.00	107	0.482
378	3.45	18.81	33.98	400	3.45	18.82	34.00	27.07	100	0.588
473	3.42	18.87	34.09	500	3.39	18.88	34.11	27.16	92	0.687
568	3.30	18.91	34.16	600	3.27	18.92	34.18	27.23	85	0.779
758	3.10	18.96	34.25	800	3.03	18.97	34.27	27.32	77	0.950
945	2.81	19.01	34.34	1000	2.73	19.02	34.36	27.42	67	1.105
1140	2.55	19.06	34.43	1200	2.49	19.07	34.45	27.51	59	1.244
1428	2.28	19.08	34.47							

Station Os 26

Date June 25,1959 Time 2020~2118 (S.M.T.) Latitude 48°32′N Longitude 180°00′
Wind ENE 3 Weather o Air Temp. 5.2°C Sea ENE 3 Swell ESE 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	6.4	18.21	32.90	0	6.4	18.21	32.90	25.87	214	0
10	6.55	18.21	32.90	10	6.55	18.21	32.90	25.85	216	0.022
20	6.18	18.22	32.92	20	6.18	18.22	32.92	25.91	211	0.043
30	6.06	18.22	32.92	30	6.06	18.22	32.92	25.92	210	0.064
49	5.64	18.23	32.94	50	5.58	18.23	32.94	26.00	202	0.105
74	4.00	18.23	32.94	75	3.98	18.23	32.94	26.17	186	0.154
92	3.93	18.26	32.99	100	3.85	18.30	33.06	26.28	175	0.199
138	3.03	18.48	33.39	150	3.00	18.49	33.40	26.63	142	0.279
184	3.18	18.70	33.78	200	3.23	18.51	33.44	26.64	141	0.351
279	3.36	18.77	33.91	300	3.40	18.62	33.64	26.78	128	0.488
372	3.48	18.85	34.05	400	3.49	18.85	34.05	27.11	97	0.603
467	3.42	18.89	34.13	500	3.38	18.90	34.15	27.19	89	0.699
562	3.27	18.91	34.16	600	3.21	18.92	34.18	27.23	85	0.790
751	3.03	19.00	34.33	800	2.97	19.01	34.34	27.39	70	0.954
940	2.79	19.02	34.36	1000	2.69	19.05	34.42	27.47	62	1.097
1135	2.56	19.10	34.51	1200	2.49	19.10	34.51	27.56	54	1.226
1426	2.32	19.10	34.51							

Table 2. (Continued)

Station Os 27

Date June 26,1959 Time 1708~1830 (S.M.T.) Latitude 48°32′N Longitude 177°20′W
Wind NNE 3 Weather o Air Temp. 6.4°C Sea NNE 3 Swell E 1 Col. 4 Tr. 15m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	6.9	18.20	32.88	0	6.9	18.20	32.88	25.79	222	0
10	6.80	18.20	32.88	10	6.80	18.20	32.88	25.80	221	0.022
20	6.66	18.20	32.88	20	6.66	18.20	32.88	25.82	219	0.044
30	5.95	18.20	32.88	30	5.95	18.20	32.88	25.91	211	0.066
50	5.04	18.21	32.90	50	5.04	18.21	32.90	26.03	199	0.107
75	4.24	18.24	32.95	75	4.24	18.24	32.95	26.16	187	0.156
96	4.27	18.25	32.97	100	4.27	18.25	32.97	26.17	186	0.203
144	3.56	18.37	33.19	150	3.50	18.40	33.24	26.46	158	0.290
191	3.22	18.65	33.69	200	3.21	18.66	33.71	26.86	120	0.360
259	3.30	18.73	33.84	300	3.39	18.65	33.69	26.83	123	0.484
344	3.43	18.78	33.93	400	3.44	18.82	34.00	27.07	100	0.598
430	3.43	18.85	34.05	500	3.37	18.89	34.13	27.18	90	0.696
513	3.35	18.90	34.15	600	3.28	18.93	34.20	27.24	84	0.787
672	3.20	18.95	34.24	800	3.00	18.97	34.27	27.33	76	0.956
828	2.97	18.98	34.29	1000	2.75	19.00	34.33	27.39	70	1.103
985	2.77	19.00	34.33	1200	2.53	19.06	34.43	27.50	60	1.246
1205	2.52	19.06	34.43							

Station Os 28

Date June 27,1959 Time 0620~0740 (S.M.T.) Latitude 48°26′N Longitude 175°06′W
Wind E 1 Weather c Air Temp. 5.7°C Sea E 1 Swell E 1 Col. 3 Tr. 13m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	6.8	18.20	32.88	0	6.8	18.20	32.88	25.80	221	0
10	6.76	18.17	32.83	10	6.76	18.17	32.83	25.76	225	0.022
20	6.60	18.18	32.85	20	6.60	18.18	32.85	25.80	221	0.044
30	5.91	18.18	32.85	30	5.91	18.18	32.85	25.89	212	0.066
50	5.43	18.18	32.85	50	5.43	18.18	32.85	25.93	209	0.108
75	4.13	18.20	32.88	75	4.13	18.20	32.88	26.11	192	0.158
100	3.57	18.21	32.90	100	3.57	18.21	32.90	26.18	185	0.205
150	3.51	18.75	33.87	150	3.51	18.75	33.87	26.96	111	0.280
200	3.39	18.76	33.89	200	3.39	18.76	33.89	26.99	108	0.336
299	3.54	18.80	33.96	300	3.54	18.80	33.96	27.03	104	0.444
399	3.49	18.87	34.09	400	3.49	18.87	34.09	27.14	94	0.546
499	3.40	18.93	34.20	500	3.40	18.93	34.20	27.23	85	0.639
599	3.23	18.96	34.25	600	3.23	18.96	34.25	27.29	80	0.725
798	2.96	18.99	34.31	800	2.96	18.99	34.31	27.36	73	0.887
998	2.69	19.02	34.36	1000	2.69	19.02	34.36	27.43	66	1.037
1197	2.47	19.06	34.43	1200	2.47	19.06	34.43	27.50	60	1.176
1496	2.22	19.10	34.51	1500	2.22	19.10	34.51	27.58	52	1.367

Table 2. (Continued)

Station Os 29

Date June 27, 1959 Time 2000~2054 (S.M.T.) Latitude 48°23′N Longitude 172°30′W
Wind NW 1 Weather o Air Temp. 6.5°C Sea NW 1 Swell E 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	7.8	18.18	32.85	0	7.8	18.18	32.85	25.63	237	0
10	7.41	18.18	32.85	10	7.41	18.18	32.85	25.69	231	0.023
20	7.01	18.18	32.85	20	7.01	18.18	32.85	25.74	227	0.046
30	6.57	18.19	32.86	30	6.57	18.19	32.86	25.82	219	0.068
50	5.57	18.19	32.86	50	5.57	18.19	32.86	25.94	208	0.111
75	4.52	18.20	32.88	75	4.52	13.20	32.88	26.07	195	0.162
100	4.26	18.25	32.97	100	4.26	18.25	32.97	26.17	186	0.210
150	3.40	18.36	33.17	150	3.40	18.36	33.17	26.41	163	0.298
200	3.40	18.51	33.41	200	3.40	18.51	33.41	26.63	142	0.375
300	3.58	18.77	33.91	300	3.58	18.77	33.91	26.98	109	0.503
400	3.48	18.84	34.04	400	3.48	18.84	34.04	27.09	98	0.609
500	3.49	18.90	34.15	500	3.49	18.90	34.15	27.18	90	0.706
600	3.29	18.95	34.24	600	3.29	18.95	34.24	27.27	81	0.795
800	3.01	19.00	34.33	800	3.01	19.00	34.33	27.37	72	0.957
999	2.76	19.04	34.40	1000	2.76	19.04	34.40	27.44	65	1.005
1199	2.49	19.07	34.45	1200	2.49	19.07	34.45	27.52	58	1.241
1499	2.24	19.11	34.52	1500	2.24	19.11	34.52	27.60	50	1.426

Station Os 30

Date June 28, 1959 Time 1150~1258 (S.M.T.) Latitude 49°29′N Longitude 171°59′W
Wind W 3 Weather c Air Temp. 7.2°C Sea W 3 Swell ESE 1 Col. 3 Tr. 12m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	7.7	18.17	32.83	0	7.7	18.17	32.83	25.63	237	0
10	7.40	18.17	32.83	10	7.40	18.17	32.83	25.67	233	0.024
20	6.19	18.17	32.83	20	6.19	18.17	32.83	25.83	218	0.047
30	5.68	18.19	32.86	30	5.68	18.19	32.86	25.92	210	0.068
50	5.43	18.17	32.83	50	5.43	18.17	32.83	25.93	209	0.110
75	4.45	18.18	32.85	75	4.45	18.18	32.85	26.05	197	0.161
94	4.14	18.20	32.88	100	4.04	18.23	32.94	26.17	186	0.209
141	3.61	18.53	33.48	150	3.61	18.57	33.55	26.69	136	0.290
188	3.61	18.69	33.77	200	3.61	18.71	33.80	26.89	117	0.354
285	3.60	18.79	33.95	300	3.61	18.80	33.96	27.02	105	0.467
381	3.59	18.83	34.02	400	3.58	18.84	34.04	27.08	99	0.572
476	3.50	18.91	34.16	500	3.48	18.92	34.18	27.21	87	0.668
572	3.32	18.94	34.22	600	3.27	18.95	34.24	27.27	81	0.756
762	3.06	19.01	34.34	800	3.01	19.02	34.36	27.40	69	0.915
954	2.82	19.03	34.38	1000	2.75	19.04	34.40	27.45	64	1.059
1145	2.51	19.06	34.43	1200	2.46	19.07	34.45	27.52	58	1.194
1432	2.28	19.10	34.51							

Table 2. (Continued)

Station Os 31

Date June 28,1959 Time 2000~2139 (S.M.T.) Latitude 50°25′N Longitude 171°59′W
Wind WNW 3 Weather o Air Temp. 6.5°C Sea WNW 3 Swell NW 1 Col. 4 Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	7.5	18.20	32.88	0	7.5	18.20	32.88	25.70	230	0
10	7.51	18.19	32.86	10	7.51	18.19	32.86	25.69	231	0.023
20	5.97	18.20	32.88	20	5.97	18.20	32.88	25.91	221	0.046
30	5.55	18.20	32.88	30	5.55	18.20	32.88	25.96	206	0.067
50	4.07	18.31	33.08	50	4.07	18.31	33.08	26.28	175	0.105
75	3.89	18.30	33.06	75	3.89	18.30	33.06	26.29	174	0.149
98	3.62	18.32	33.10	100	3.61	18.33	33.12	26.34	170	0.192
147	3.62	18.62	33.64	150	3.62	18.63	33.66	26.78	128	0.268
196	3.42	18.74	33.86	200	3.41	18.74	33.86	26.95	112	0.329
297	3.49	18.83	34.02	300	3.49	18.84	34.04	27.09	98	0.437
396	3.57	18.90	34.15	400	3.57	18.90	34.15	27.17	91	0.535
495	3.34	18.93	34.20	500	3.33	18.93	34.20	27.24	84	0.626
594	3.15	18.95	34.24	600	3.14	18.95	34.24	27.29	80	0.712
779	2.89	19.01	34.34	800	2.86	19.02	34.36	27.41	68	0.869
934	2.68	19.03	34.38	1000	2.63	19.04	34.40	27.46	63	1.011
1179	2.47	19.08	34.47	1200	(2.45)	(19.08)	(34.47)	(27.54)	(56)	(1.143)

Station Os 32

Date June 29,1959 Time 1205~1300 (S.M.T.) Latitude 51°30′N Longitude 172°50′W
Wind WNW 3 Weather c Air Temp. 7.5°C Sea WNW 3 Swell NW 1 Col. 4 Tr. 17m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	7.8	18.11	32.72	0	7.8	18.11	32.72	25.53	247	0
10	7.53	18.10	32.70	10	7.53	18.10	32.70	25.56	244	0.025
20	6.81	18.11	32.72	20	6.81	18.11	32.72	25.67	233	0.049
30	6.13	18.11	32.72	30	6.13	18.11	32.72	25.76	225	0.072
50	5.27	18.14	32.77	50	5.27	18.14	32.77	25.90	211	0.116
75	4.45	18.22	32.92	75	4.45	18.22	32.92	26.11	192	0.167
99	4.44	18.39	33.22	100	4.44	18.40	33.24	26.37	167	0.212
149	4.34	18.72	33.82	150	4.34	18.73	33.84	26.85	121	0.285
198	4.09	18.78	33.93	200	4.08	18.78	33.93	26.94	113	0.345
290	3.79	18.84	34.04	300	3.77	18.84	34.04	27.01	106	0.457
386	3.64	18.86	34.07	400	3.62	18.87	34.09	27.06	101	0.564
482	3.54	18.89	34.13	500	3.51	18.90	34.15	27.11	97	0.666
580	3.35	18.93	34.20	600	3.30	18.94	34.22	27.26	82	0.759
773	3.13	18.97	34.27	800	3.09	18.98	34.29	27.32	77	0.927
969	2.86	19.04	34.40	1000	2.79	19.04	34.40	27.44	65	1.080
1163	2.52	19.07	34.45	1200	2.48	19.08	34.47	27.53	57	1.215
1460	2.20	19.10	34.51							

Table 2. (Continued)

Station Os 33

Date June 29,1959 Time 2250~2353 (S.M.T.) Latitude 52°50′N Longitude 172°00′W
Wind WNW 3 Weather d Air Temp. 5.1°C Sea WNW 3 Swell NW 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	5.3	18.38	33.21	0	5.3	18.38	33.21	26.24	179	0
10	5.41	18.38	33.21	10	5.41	18.38	33.21	26.23	180	0.018
20	5.22	18.41	33.26	20	5.22	18.41	33.26	26.30	173	0.036
30	4.94	18.41	33.26	30	4.94	18.41	33.26	26.32	172	0.053
49	4.59	18.44	33.31	50	4.58	18.44	33.31	26.40	164	0.087
74	4.53	18.46	33.35	75	4.53	18.46	33.35	26.44	160	0.128
100	4.39	18.51	33.44	100	4.39	18.51	33.44	26.53	152	0.167
145	4.24	18.55	33.51	150	4.22	18.55	33.51	26.60	145	0.242
193	4.10	18.56	33.53	200	4.09	18.57	33.55	26.65	140	0.314
297	3.97	18.65	33.69	300	3.96	18.65	33.69	26.77	129	0.451
397	3.79	18.73	33.84	400	3.78	18.73	33.84	26.90	117	0.577
496	3.66	18.81	33.98	500	3.65	18.81	33.98	27.03	104	0.691
596	3.46	18.85	34.05	600	3.43	18.85	34.05	27.11	97	0.796
794	3.21	18.92	34.18	800	3.20	18.92	34.18	27.24	84	0.986
993	2.91	19.00	34.33	1000	2.90	19.00	34.33	27.38	71	1.152
1192	2.63	19.04	34.40	1200	2.62	19.04	34.40	27.46	63	1.299
1490	2.30	19.10	34.51	1500	2.29	19.10	34.51	27.58	52	1.494

Station Os 34

Date June 30,1959 Time 0900~1028 (S.M.T.) Latitude 54°10′N Longitude 172°00′W
Wind N 3 Weather o Air Temp. 7.3°C Sea N 3 Swell NW 1 Col. 4 Tr. 18m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	7.2	18.35	33.15	0	7.2	18.35	33.15	25.95	207	0
10	6.95	18.35	33.15	10	6.95	18.35	33.15	26.00	202	0.020
20	5.94	18.35	33.15	20	5.94	18.35	33.15	26.13	190	0.040
30	5.13	18.33	33.12	30	5.13	18.33	33.12	26.19	184	0.059
50	4.01	18.35	33.15	50	4.01	18.35	33.15	26.33	171	0.095
75	3.80	18.38	33.21	75	3.80	18.38	33.21	26.40	164	0.137
99	3.57	18.43	33.30	100	3.55	18.43	33.30	26.50	154	0.177
149	2.44	18.39	33.22	150	2.43	18.39	33.22	26.54	151	0.254
199	2.43	18.40	33.24	200	2.43	18.40	33.24	26.55	150	0.330
290	3.89	18.69	33.77	300	3.93	18.70	33.78	26.84	122	0.467
387	3.85	18.76	33.89	400	3.82	18.77	33.91	26.96	111	0.586
465	3.69	—	—	500	3.64	18.82	34.00	27.04	103	0.697
557	3.54	18.85	34.05	600	3.49	18.87	34.09	27.14	94	0.800
746	3.33	18.94	34.22	800	3.25	18.96	34.25	27.28	80	0.984
936	3.04	19.00	34.33	1000	2.95	19.01	34.34	27.39	70	1.147
1137	2.77	—	—	1200	2.69	19.05	34.42	27.47	62	1.293
1415	2.46	19.07	34.45							

Table 2. (Continued)

Station Os 35

Date June 30,1959 Time 2015~2110 (S.M.T.) Latitude 54°44′N Longitude 170°14′W
Wind N 3 Weather d Air Temp. 6.2°C Sea N 3 Swell NNE 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	7.3	18.10	32.70	0	7.3	18.10	32.70	25.59	241	0
10	7.30	18.09	32.68	10	7.30	18.09	32.68	25.58	242	0.024
19	6.93	—	—	20	6.83	18.10	32.70	25.65	235	0.048
29	5.90	18.18	32.85	30	5.83	18.18	32.85	25.77	224	0.071
49	4.54	18.15	32.79	50	4.47	18.15	32.79	26.00	202	0.114
74	3.77	—	—	75	3.75	18.17	32.83	26.10	192	0.164
84	3.94	18.19	32.86	100	3.90	18.21	32.90	26.15	188	0.212
126	3.88	18.26	32.99	150	3.86	18.29	33.04	26.27	176	0.304
168	3.85	18.32	33.10	200	3.79	18.36	33.17	26.37	167	0.369
258	3.64	18.41	33.26	300	3.69	18.45	33.33	26.51	154	0.531
344	3.78	18.51	33.44	400	3.89	18.60	33.60	26.71	135	0.678
431	3.89	18.66	33.71	500	3.73	18.77	33.91	26.96	111	0.803
517	3.69	18.79	33.95	600	3.58	18.83	34.02	27.06	101	0.913
693	3.50	18.86	34.07	800	3.38	18.90	34.15	27.19	89	1.113
877	3.27	18.92	34.18	1000	3.06	18.96	34.25	27.31	78	1.293
1061	2.94	18.98	34.29	1200	2.73	(19.02)	(34.36)	(27.42)	(67)	(1.452)
1343	2.58	—	—							

Station Os 36

Date July 1,1959 Time 1246~1337 (S.M.T.) Latitude 55°11′N Longitude 168°30′W
Wind NNW 2 Weather o Air Temp. 7.2°C Sea NNW 2 Swell N 1 Col. 4 Tr. 15m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	7.4	18.07	32.65	0	7.4	18.07	32.65	25.53	247	0
10	7.28	18.06	32.63	10	7.28	18.06	32.63	25.54	246	0.025
20	7.00	18.06	32.63	20	7.00	18.06	32.63	25.58	242	0.049
30	5.47	18.14	32.77	30	5.47	18.14	32.77	25.88	213	0.072
50	4.49	18.17	32.83	50	4.49	18.17	32.83	26.03	199	0.113
75	3.93	18.24	32.95	75	3.93	18.24	32.95	26.19	184	0.161
95	3.91	18.28	33.03	100	3.90	18.29	33.04	26.26	177	0.206
143	3.70	18.38	33.21	150	3.64	18.39	33.22	26.43	161	0.291
190	3.56	18.43	33.30	200	3.56	18.44	33.31	26.51	154	0.370
285	3.87	18.56	33.53	300	3.90	18.59	33.59	26.69	136	0.517
381	3.86	18.72	33.82	400	3.82	18.74	33.86	26.92	115	0.645
477	3.65	18.80	33.96	500	3.60	18.81	33.98	27.04	103	0.758
572	3.46	18.85	34.05	600	3.41	18.87	34.09	27.14	94	0.861
765	3.18	18.94	34.22	800	3.12	18.95	34.24	27.29	80	1.044
958	2.89	18.99	34.31	1000	2.80	19.00	34.33	27.39	70	1.205
1151	2.60	19.03	34.38	1200	2.57	19.03	34.38	27·45	64	1.352
1445	2.39	19.03	34.38							

Table 2. (Continued)

Station Os 37

Date July 1,1959 Time 2100~2120 (S.M.T.) Latitude 55°40′N Longitude 167°06′W
Wind WNW 3 Weather o Air Temp. 5.6°C Sea WNW 3 Swell NW 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	7.0	17.59	31.78	0	7.0	17.59	31.78	24.91	306	0
10	7.02	17.61	31.82	10	7.02	17.61	31.81	24.93	304	0.031
19	5.04	17.68	31.94	20	5.02	17.69	31.96	25.29	269	0.060
29	4.98	17.78	32.12	30	3.95	17.79	32.14	25.54	246	0.086
48	3.06	17.85	32.25	50	2.98	17.85	32.25	25.72	229	0.134
68	2.55	17.86	32.27	75	2.60	17.88	32.30	25.79	222	0.190
91	3.13	18.03	32.57	100	3.27	18.07	32.65	26.00	202	0.243
127	3.40	18.13	32.76	150						

Station Os 38

Date July 3,1959 Time 1400~1410 (S.M.T.) Latitude 56°12′N Longitude 166°30′W
Wind W 4 Weather o Air Temp. 6.6°C Sea W 3 Swell W 2 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	6.6	17.38	31.40	0	6.6	17.38	31.40	24.66	329	0
10	6.55	17.38	31.40	10	6.55	17.38	31.40	24.67	328	0.033
20	5.05	17.38	31.40	20	5.05	17.38	31.40	24.84	312	0.065
30	3.11	17.39	31.42	30	3.11	17.39	31.42	25.04	293	0.095
50	1.67	17.59	31.78	50	1.67	17.59	31.78	25.44	255	0.150
80	0.32	17.66	31.91	75	0.35	17.65	31.89	25.60	240	0.212

Station Os 39

Date July 6,1959 Time 1810~1850 (S.M.T.) Latitude 55°27′N Longitude 164°38′W
Wind WNW 4 Weather o Air Temp. 6.7°C Sea WNW 4 Swell W 2 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	6.9	17.44	31.51	0	6.9	17.44	31.51	24.72	324	0
10	6.85	17.46	31.55	10	6.85	17.46	31.55	24.75	321	0.032
19	6.84	17.47	31.56	20	6.82	17.47	31.56	24.76	320	0.064
24	5.65	17.46	31.55	30	5.10	17.71	32.00	25.31	268	0.093
34	4.99	17.71	32.00	50	3.55	17.74	32.05	25.51	249	0.145
43	4.90	17.73	32.03	75	1.63	17.79	32.14	25.73	228	0.205
63	1.32	17.74	32.05	100	2.10	17.83	32.21	25.76	225	0.262
85	2.14	17.82	32.20							
105	2.06	17.83	32.21							

Table 2. (Continued)

Station Os 40

Date July 8,1959 Time 1556～1705 (S.M.T.) Latitude 57°01′N Longitude 174°30′W
Wind WSW 1 Weather o Air Temp. 5.5°C Sea WSW 1 Swell W 1 Col. 4 Tr. 12m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	6.7	18.03	32.57	0	6.7	18.03	32.57	25.57	243	0
10	6.41	18.05	32.61	10	6.41	18.05	32.61	25.63	237	0.024
20	6.34	18.08	32.66	20	6.34	18.08	32.66	25.69	231	0.047
30	6.19	18.12	32.74	30	6.19	18.12	32.74	25.77	224	0.070
50	5.04	18.26	32.99	50	5.04	18.26	32.99	26.10	192	0.112
75	4.07	18.30	33.06	75	4.07	18.30	33.06	26.26	177	0.158
100	3.75	18.35	33.15	100	3.75	18.35	33.15	26.36	168	0.201
150	3.40	18.41	33.26	150	3.40	18.41	33.26	26.49	155	0.282
200	3.31	18.44	33.31	200	3.31	18.44	33.31	26.53	152	0.359
297	3.93	18.63	33.66	300	3.95	18.64	33.68	26.75	131	0.502
396	3.83	18.75	33.87	400	3.82	18.75	33.87	26.92	115	0.628
495	3.70	18.81	33.98	500	3.69	18.81	33.98	27.03	104	0.741
595	3.43	18.87	34.09	600	3.42	18.87	34.09	27.14	94	0.844
794	3.26	18.93	34.20	800	3.25	18.93	34.20	27.24	84	1.032
993	2.90	19.00	34.33	1000	2.89	19.00	34.34	27.38	71	1.199
1049	2.79	19.01	34.34	1200	2.66	19.03	34.38	27.44	65	1.347
1451	2.42	19.06	34.43							

Station Os 41

Date July 9,1959 Time 0127～0229 (S.M.T.) Latitude 57°00′N Longitude 176°22′W
Wind WSW 2 Weather o Air Temp. 5.2°C Sea WSW 2 Swell W 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	5.3	18.12	32.74	0	5.3	18.12	32.74	25.87	214	0
10	6.33	18.12	32.74	10	6.33	18.12	32.74	25.74	227	0.022
20	6.17	18.12	32.74	20	6.17	18.12	32.74	25.78	223	0.045
30	6.07	18.14	32.77	30	6.07	18.14	32.77	25.81	220	0.067
49	3.69	18.28	33.03	50	3.65	18.29	33.04	26.29	174	0.106
74	3.16	18.34	33.13	75	3.15	18.35	33.15	26.42	162	0.148
97	3.05	18.38	33.21	100	3.02	18.38	33.21	26.49	155	0.188
146	2.63	18.39	33.22	150	2.63	18.39	33.22	26.57	148	0.264
194	3.65	18.50	33.42	200	3.71	18.51	33.44	26.66	139	0.337
295	3.89	18.66	33.71	300	3.89	18.67	33.73	26.80	126	0.472
394	3.74	18.79	33.95	400	3.73	18.80	33.96	27.00	107	0.591
492	3.58	18.85	34.05	500	3.56	18.86	34.07	27.11	97	0.696
591	3.35	18.90	34.15	600	3.33	18.90	34.15	27.18	90	0.793
788	3.16	18.96	34.25	800	3.14	18.96	34.25	27.30	79	0.971
985	2.86	19.00	34.33	1000	2.83	19.00	34.33	27.38	71	1.132
1183	2.63	19.04	34.40	1200	2.62	19.04	34.40	27.46	63	1.279
1479	2.35	—	—							

Table 2. (Continued)

Station Os 42

Date July 9,1959 Time 1313~1415 (S.M.T.) Latitude 57°00′N Longitude 179°10′W
Wind SW 3 Weather f Air Temp. 6.3°C Sea SW 3 Swell W 1 Col. 4 Tr. 15m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	6.1	18.30	33.06	0	6.1	18.30	33.06	26.03	199	0
10	6.24	18.30	33.06	10	6.24	18.30	33.06	26.01	201	0.020
20	6.03	18.31	33.08	20	6.03	18.31	33.08	26.06	196	0.040
30	5.59	18.30	33.06	30	5.59	18.30	33.06	26.10	192	0.059
50	3.39	18.36	33.17	50	5.39	18.36	33.17	26.20	183	0.097
75	3.07	18.37	33.19	75	3.07	18.37	33.19	26.46	158	0.140
99	2.80	18.39	33.22	100	2.79	18.39	33.22	26.51	154	0.179
149	2.39	18.40	33.24	150	2.39	18.40	33.24	26.55	150	0.256
199	3.80	18.57	33.55	200	3.81	18.58	33.57	26.68	137	0.329
295	3.83	18.71	33.80	300	3.82	18.71	33.80	26.88	118	0.459
394	3.68	18.79	33.95	400	3.67	18.80	33.96	27.02	105	0.573
492	3.52	18.85	34.05	500	3.51	18.86	34.07	27.12	96	0.677
591	3.34	18.91	34.16	600	3.33	18.92	34.18	27.22	86	0.772
788	3.16	18.97	34.27	800	3.14	18.97	34.27	27.31	78	0.945
985	2.81	18.99	34.31	1000	2.79	18.99	34.31	27.38	71	1.105
1183	2.58	19.04	34.40	1200	2.56	19.04	34.40	27.47	62	1.251
1480	2.28	19.10	34.51							

Station Os 43

Date July 11,1959 Time 1100~1210 (S.M.T.) Latitude 57°38′N Longitude 177°59′E
Wind W 3 Weather o Air Temp. 5.7°C Sea W 3 Swell W 1 Col. 4 Tr. 13m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	6.7	18.26	32.99	0	6.7	18.26	32.99	25.89	212	0
10	6.31	18.26	32.99	10	6.31	18.26	32.99	25.85	216	0.021
20	6.17	18.26	32.99	20	6.17	18.26	32.99	25.96	206	0.042
30	5.95	—	—	30	5.95	18.27	33.01	26.01	201	0.062
49	3.77	—	—	50	3.73	18.31	33.08	26.30	173	0.099
74	2.80	18.36	33.17	75	2.78	18.36	33.17	26.48	156	0.140
94	2.52	18.37	33.19	100	2.44	18.37	33.19	26.50	154	0.159
141	1.94	18.37	33.19	150	1.93	18.37	33.19	26.55	150	0.256
188	2.15	18.39	33.22	200	(2.32)	(18.39)	(33.22)	(26.55)	(150)	(0.331)

Table 2. (Continued)

Station Os 44

Date July 11,1959 Time 2005~2048 (S.M.T.) Latitude 57°32′N Longitude 176°30′E
Wind W 3 Weather f Air Temp. 5.4°C Sea W 3 Swell W 1 Col. 4 Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	6.8	18.32	33.10	0	6.8	18.32	33.10	25.97	205	0
10	6.36	18.32	33.10	10	6.36	18.32	33.10	26.02	201	0.020
20	6.30	18.39	33.22	20	6.30	18.39	33.22	26.14	189	0.040
30	6.06	18.37	33.19	30	6.06	18.37	33.19	26.14	189	0.059
50	3.12	18.37	33.19	50	3.12	18.37	33.19	26.45	159	0.094
75	2.00	18.38	33.21	75	2.00	18.38	33.21	26.56	149	0.133
96	1.64	18.36	33.17	100	1.60	18.36	33.17	26.57	148	0.170
144	1.21	18.36	33.17	150	1.21	18.36	33.17	26.58	147	0.254
191	1.56	18.41	33.26	200	1.67	18.43	33.30	26.65	140	0.316
287	3.72	18.71	33.80	300	3.73	18.74	33.86	26.92	115	0.445
383	3.69	18.80	33.96	400	(3.67)	(18.81)	(33.92)	(27.03)	(104)	(0.557)

Station Os 45

Date July 12,1959 Time 2008~2108 (S.M.T.) Latitude 56°56′N Longitude 174°30′E
Wind WSW 4 Weather o Air Temp. 6.6°C Sea WSW 4 Swell W 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	6.7	18.33	33.12	0	6.7	18.33	33.12	26.00	202	0
10	6.52	18.32	33.10	10	6.52	18.32	33.10	26.00	202	0.020
19	6.43	18.32	33.10	20	6.40	18.32	33.10	26.03	199	0.040
29	5.97	18.33	33.12	30	5.88	18.32	33.10	26.09	193	0.060
48	4.34	18.34	33.13	50	4.27	18.34	33.13	26.31	173	0.097
72	3.10	18.37	33.19	75	2.90	18.38	33.21	26.49	155	0.138
77	2.76	18.39	33.22	100	2.13	18.39	33.22	26.52	153	0.177
115	2.11	18.39	33.22	150	2.82	18.40	33.24	26.53	152	0.254
153	2.90	18.40	33.24	200	3.50	18.56	33.53	26.69	136	0.327
274	3.78	18.72	33.82	300	3.74	18.74	33.86	26.94	113	0.454
343	3.69	18.78	33.93	400	3.63	18.84	34.04	27.08	99	0.563
414	3.61	18.85	34.05	500	3.43	18.86	34.07	27.13	95	0.663
490	3.44	18.86	34.07	600	3.37	18.90	34.15	27.18	90	0.759
645	3.33	18.91	34.16	800	3.07	18.95	34.24	27.29	80	0.938
800	3.07	18.95	34.24	1000	2.79	19.01	34.34	27.40	69	1.098
961	2.82	19.00	34.33	1200	2.55	19.05	34.42	27.48	62	1.242
1213	2.54	19.05	34.42							

Table 2. (Continued)

Station Os 46

Date July 13, 1959 Time 1412～1527 (S.M.T.) Latitude 58°19′N Longitude 174°50′E
Wind SSW 4 Weather d Air Temp. 7.3°C Sea SSW 4 Swell WSW 1 Col. × Tr. 13m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	6.5	18.30	33.06	0	6.5	18.30	33.06	25.98	204	0
10	6.22	18.32	33.10	10	6.22	18.32	33.10	26.04	198	0.020
19	6.12	18.32	33.10	20	6.11	18.32	33.10	26.06	196	0.040
29	6.08	18.32	33.10	30	6.00	18.32	33.10	26.08	194	0.060
48	3.27	18.36	33.17	50	4.10	18.36	33.17	26.34	170	0.096
72	2.35	18.38	33.21	75	2.32	18.38	33.21	26.53	152	0.136
81	2.24	18.39	33.22	100	1.97	18.39	33.22	26.58	147	0.173
121	1.79	18.39	33.22	150	2.72	18.49	33.40	26.66	139	0.245
162	3.02	18.53	33.48	200	3.67	18.64	33.68	26.79	127	0.312
218	3.73	18.68	33.75	300	3.73	18.77	33.91	26.95	112	0.434
289	3.74	18.77	33.91	400	3.61	18.83	34.02	27.06	101	0.543
362	3.68	18.81	33.98	500	3.50	18.87	34.09	27.13	95	0.644
447	3.54	18.85	34.05	600	3.39	18.91	34.16	27.20	88	0.739
591	3.41	18.91	34.16	800	3.09	18.98	34.29	27.33	76	0.912
743	3.15	18.96	34.25	1000	2.83	19.02	34.36	27.41	68	1.067
902	2.96	19.00	34.33	1200	(2.60)	(19.05)	(34.42)	(27.48)	(62)	(1.210)
1156	2.65	19.04	34.40							

Station Os 47

Date July 14, 1959 Time 0307～0405 (S.M.T.) Latitude 58°54′N Longitude 172°07′E
Wind NE 1 Weather o Air Temp. 6.8°C Sea NE 1 Swell SSW 2 Col. 4 Tr. 17m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	7.6	18.23	32.94	0	7.6	18.23	32.94	25.73	228	0
10	7.18	18.26	32.99	10	7.18	18.26	32.99	25.84	217	0.022
20	6.96	18.26	32.99	20	6.96	18.26	32.99	25.86	215	0.044
30	2.75	18.31	33.08	30	2.75	18.31	33.08	26.40	164	0.063
50	2.47	18.33	33.12	50	2.47	18.33	33.12	26.46	158	0.095
75	2.24	18.36	33.17	75	2.24	18.36	33.17	26.51	154	0.134
97	2.08	18.36	33.17	100	2.07	18.36	33.17	26.53	152	0.172
145	2.09	18.42	33.28	150	2.11	18.44	33.31	26.50	154	0.249
193	3.64	18.59	33.59	200	3.69	18.61	33.62	26.74	132	0.321
293	3.77	18.73	33.84	300	3.77	18.74	33.86	26.91	116	0.447
391	3.66	18.79	33.95	400	3.64	18.80	33.96	27.01	106	0.561
489	3.47	18.86	34.07	500	3.46	18.87	34.09	27.14	94	0.664
684	3.20	18.94	34.22	600	3.32	18.91	34.16	27.20	88	0.759
980	2.81	19.01	34.34	800	3.06	18.97	34.27	27.33	76	0.932
				1000	(2.79)	(19.01)	(34.34)	(27.40)	(69)	(1.088)

Table 2. (Continued)

Station Os 48

Date July 14, 1959 Time 1104~1145 (S.M.T.) Latitude 59°19′N Longitude 170°20′E
Wind ENE 1 Weather o Air Temp. 8.4°C Sea ENE 1 Swell SSW 1 Col. 6 Tr. 9m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	10.0	16.32	29.49	0	10.0	16.32	29.49	22.68	518	0
9	8.50	17.98	29.48	10	8.30	18.02	32.56	25.34	265	0.039
18	6.87	18.12	29.74	20	6.80	18.16	32.81	25.75	226	0.064
28	6.61	18.24	29.95	30	6.32	18.23	32.94	25.90	211	0.086
47	3.77	18.31	33.08	50	3.57	18.31	33.08	26.32	172	0.124
72	2.34	18.34	33.13	75	2.28	18.35	33.15	26.50	154	0.165
77	2.23	18.36	33.17	100	2.03	18.36	33.17	26.52	153	0.204
115	2.05	18.36	33.17	150	2.33	18.44	33.31	26.62	144	0.279
153	2.36	18.44	33.31	200	3.00	18.56	33.53	26.74	132	0.349
230	3.35	18.61	33.62	300	3.64	18.70	33.87	26.87	119	0.477
306	3.65	18.71	33.80							

Station Os 49

Date July 14, 1959 Time 2031~2130 (S.M.T.) Latitude 58°18′N Longitude 169°58′E
Wind 0 Weather bc Air Temp. 8.7°C Sea 0 Swell S 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	9.4	17.58	31.76	0	9.4	17.58	31.76	24.54	341	0
10	8.31	17.93	32.39	10	8.31	17.93	32.39	25.20	278	0.031
20	6.99	18.32	33.10	20	6.99	18.32	33.10	25.94	208	0.055
30	6.00	18.32	33.10	30	6.00	18.32	33.10	26.08	194	0.075
50	1.77	18.35	33.15	50	1.77	18.35	33.15	26.53	152	0.110
75	1.58	18.35	33.15	75	1.58	18.35	33.15	26.55	150	0.148
99	1.32	18.36	33.17	100	1.31	18.36	33.17	26.59	146	0.185
149	1.35	18.39	33.22	150	1.37	18.40	33.24	26.63	142	0.257
198	3.53	18.62	33.64	200	3.53	18.63	33.66	26.79	127	0.325
289	3.71	18.75	33.87	300	3.71	18.76	33.89	26.96	111	0.446
387	3.73	18.82	34.00	400	3.71	18.83	34.02	27.05	102	0.555
483	3.48	18.86	34.07	500	3.46	18.87	34.09	27.13	95	0.657
580	3.39	18.90	34.15	600	3.36	18.91	34.16	27.20	88	0.752
774	3.09	18.96	34.25	800	3.05	18.97	34.27	27.32	77	0.926
968	2.86	19.00	34.34	1000	2.80	19.02	34.36	27.41	68	1.082
1162	2.68	19.05	34.42	1200	2.65	19.06	34.43	27.49	61	1.224

Table 2. (Continued)

Station Os 50

Date July 15,1959 Time 1111～1247 (S.M.T.) Latitude 57°19′N Longitude 169°58′E
Wind 0 Weather o Air Temp. 8.4°C Sea 0 Swell SSW 1 Col. 3 Tr. 32m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	8.2	18.30	33.06	0	8.2	18.30	33.06	25.74	227	0
10	7.28	18.30	33.06	10	7.28	18.30	33.06	25.87	214	0.022
20	5.98	18.31	33.08	20	5.98	18.31	33.08	26.06	196	0.048
30	4.68	18.34	33.13	30	4.68	18.34	33.13	26.25	178	0.067
50	3.27	18.36	33.17	50	3.27	18.36	33.17	26.42	162	0.101
75	1.98	18.36	33.17	75	1.98	18.36	33.17	26.53	152	0.141
99	1.65	18.37	33.19	100	1.64	18.37	33.19	26.57	148	0.179
149	1.62	18.41	33.26	150	1.63	18.42	33.28	26.64	141	0.252
199	3.66	18.60	33.60	200	3.68	18.61	33.62	26.74	132	0.321
265	3.78	18.69	33.77	300	3.67	18.73	33.84	26.92	115	0.447
352	3.54	18.79	33.95	400	3.50	18.83	34.02	27.08	99	0.557
440	3.48	18.86	34.07	500	3.47	18.88	34.12	27.15	93	0.656
525	3.41	18.89	34.13	600	3.28	18.91	34.16	27.21	87	0.750
694	3.09	18.93	34.20	800	2.96	18.98	34.29	27.34	75	0.921
863	2.89	19.01	34.34	1000	2.80	19.03	34.38	27.43	66	1.073
1035	2.79	19.03	34.38							

Station Os 51

Date July 15,1959 Time 2040～2159 (S.M.T.) Latitude 56°22′N Longitude 169°58′E
Wind 0 Weather o Air Temp. 6.6°C Sea 0 Swell S 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	8.6	18.31	33.08	0	8.6	18.31	33.08	25.70	230	0
10	7.46	18.31	33.08	10	7.46	18.31	33.08	25.86	215	0.022
20	7.26	18.31	33.08	20	7.26	18.31	33.08	25.89	212	0.043
30	5.89	18.32	33.10	30	5.89	18.32	33.10	26.09	193	0.063
50	2.58	18.37	33.19	50	2.58	18.37	33.19	26.50	154	0.098
75	1.74	18.37	33.19	75	1.74	18.37	33.19	26.56	149	0.136
100	1.66	18.38	33.21	100	1.66	18.38	33.21	26.59	146	0.173
150	2.75	18.50	33.42	150	2.75	18.50	33.42	26.68	137	0.244
200	3.76	18.67	33.73	200	3.76	18.67	33.73	26.81	125	0.310
300	3.67	18.77	33.91	300	3.69	18.77	33.91	26.97	110	0.430
400	3.52	18.85	34.05	400	3.52	18.85	34.05	27.10	98	0.537
500	3.31	18.90	34.15	500	3.31	18.90	34.15	27.19	89	0.634
600	3.22	18.92	34.18	600	3.22	18.92	34.18	27.23	85	0.725
800	2.95	18.99	34.31	800	2.95	18.99	34.31	27.36	73	0.892
995	2.63	19.04	34.40	1000	2.62	19.04	34.40	27.46	63	1.039
1200	2.44	19.06	34.43	1200	2.44	19.06	34.43	27.50	60	1.175
1500	2.18	19.11	34.52	1500	2.18	19.11	34.52	27.60	50	1.361

Table 2. (Continued)

Station Os 52

Date July 16, 1959 Time 1105~1204 (S.M.T.) Latitude 56°20′N Longitude 168°03′E
Wind SSW 2 Weather o Air Temp. 7.8°C Sea SSW 2 Swell S 1 Col. 4 Tr. 13m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	9.3	18.32	33.10	0	9.3	18.32	33.10	25.60	240	0
10	8.26	18.32	33.10	10	8.26	18.32	33.10	25.76	225	0.023
20	6.87	18.33	33.12	20	6.87	18.33	33.12	25.98	204	0.044
30	3.81	18.33	33.12	30	3.81	18.33	33.12	26.33	171	0.063
50	2.09	18.37	33.19	50	2.09	18.37	33.19	26.54	151	0.095
75	1.63	18.37	33.19	75	1.63	18.37	33.19	26.58	147	0.132
98	1.45	18.37	33.19	100	1.43	18.37	33.19	26.59	146	0.169
148	1.54	18.40	33.24	150	1.56	18.41	33.26	26.63	142	0.241
197	3.71	18.66	33.71	200	3.73	18.67	33.73	26.82	124	0.308
293	3.65	18.75	33.87	300	3.64	18.76	33.89	26.96	111	0.428
391	3.53	18.86	34.07	400	3.52	18.86	34.07	27.12	96	0.534
489	3.48	18.89	34.13	500	3.46	18.89	34.13	27.16	92	0.631
587	—	—	—	600	3.31	18.92	34.18	27.22	86	0.724
782	3.06	18.98	34.29	800	3.03	18.98	34.29	27.34	75	0.894
979	2.77	19.02	34.36	1000	2.73	19.02	34.36	27.42	67	1.047
1176	2.55	19.04	34.40	1200	2.53	19.04	34.40	27.47	62	1.189
1471	—	19.11	34.52	1500						

Station Os 53

Date July 16, 1959 Time 1931~2049 (S.M.T.) Latitude 56°20′N Longitude 166°18′E
Wind SSW 3 Weather o Air Temp. 8.9°C Sea SSW 3 Swell SSE 1 Col. 3 Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	9.1	18.28	33.03	0	9.1	18.28	33.03	25.57	243	0
10	8.93	18.28	33.03	10	8.93	18.28	33.03	25.60	240	0.024
20	7.74	18.30	33.06	20	7.74	18.30	33.06	25.81	220	0.047
30	7.60	18.30	33.06	30	7.60	18.30	33.06	25.83	218	0.069
49	2.62	18.36	33.17	50	2.55	18.36	33.17	26.49	155	0.106
74	1.73	18.37	33.19	75	1.72	18.37	33.19	26.56	149	0.144
94	1.50	18.37	33.19	100	1.46	18.37	33.19	26.59	146	0.181
140	1.32	18.37	33.19	150	1.32	18.37	33.19	26.60	145	0.254
187	1.73	18.41	33.26	200	2.00	18.44	33.31	26.64	141	0.326
264	3.44	18.60	33.60	300	3.70	18.67	33.73	26.82	124	0.460
351	3.73	18.74	33.86	400	3.61	18.78	33.93	26.99	108	0.579
439	3.53	18.81	33.98	500	3.55	18.85	34.05	27.10	98	0.685
528	3.56	18.87	34.09	600	3.50	18.90	34.15	27.18	90	0.783
702	3.36	18.92	34.18	800	3.19	18.94	34.22	27.27	81	0.963
879	3.07	18.96	34.25	1000	2.89	18.98	34.29	27.35	74	1.129
1053	2.80	18.99	34.31	1200	2.61	19.04	34.40	27.46	63	1.279
1317	2.43	19.08	34.47							

Table 2. (Continued)

Station Os 54

Date July 17, 1959 Time 0337～0447 (S.M.T.) Latitude 56°29′N Longitude 164°21′E
Wind SW 3 Weather c Air Temp. 9.7°C Sea SW 3 Swell SSW 1 Col. 6 Tr. 7m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	10.1	18.02	32.56	0	10.1	18.02	32.56	25.05	292	0
10	9.86	18.01	32.54	10	9.86	18.01	32.54	25.07	290	0.029
20	8.87	17.97	32.47	20	8.87	17.97	32.47	25.18	280	0.058
30	2.29	18.34	33.13	30	2.29	18.34	33.13	26.48	156	0.080
49	1.80	18.35	33.15	50	1.79	18.35	33.15	26.54	151	0.111
74	1.53	18.35	33.15	75	1.52	18.35	33.15	26.55	150	0.149
95	1.26	18.36	33.17	100	1.24	18.36	33.17	26.59	146	0.186
143	1.39	18.37	33.19	150	1.55	18.39	33.22	26.61	144	0.259
190	3.11	18.57	33.55	200	3.27	18.60	33.60	26.77	129	0.328
274	3.69	18.71	33.80	300	3.70	18.74	33.86	26.93	114	0.452
365	3.63	18.81	33.98	400	3.56	18.82	34.00	27.05	102	0.563
458	3.46	18.85	34.05	500	3.41	18.87	34.09	27.14	94	0.664
550	3.39	18.89	34.13	600	3.33	18.91	34.16	27.20	88	0.759
740	3.14	18.97	34.27	800	3.06	18.98	34.29	27.34	75	0.931
930	2.85	18.99	34.31	1000	2.77	19.01	34.34	27.40	69	1.086
1120	2.63	19.03	34.38	1200	2.55	19.05	34.42	27.48	62	1.230
1410	2.32	—	—							

Station Os 55

Date July 17, 1959 Time 1306～1428 (S.M.T.) Latitude 55°29′N Longitude 164°20′E
Wind SW 4 Weather o Air Temp. 10.8°C Sea SW 4 Swell SSW 1 Col. 5 Tr. 8m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	8.8	18.26	32.99	0	8.8	18.26	32.99	25.59	241	0
10	8.10	18.26	32.99	10	8.10	18.26	32.99	25.70	230	0.024
20	7.84	18.26	32.99	20	7.84	18.26	32.99	25.74	227	0.047
30	5.68	18.29	33.04	30	5.68	18.29	33.04	26.07	195	0.068
49	3.15	18.33	33.12	50	3.11	18.33	33.12	26.40	164	0.104
74	2.20	18.37	33.19	75	2.16	18.37	33.19	26.53	152	0.144
96	1.68	18.37	33.19	100	1.61	18.37	33.19	26.58	147	0.181
144	1.31	18.39	33.22	150	1.37	18.40	33.24	26.64	141	0.253
191	2.74	18.54	33.50	200	2.92	18.77	33.91	27.04	103	0.314
284	3.76	18.78	33.93	300	3.76	18.79	33.95	26.99	108	0.421
380	3.68	18.84	34.04	400	3.65	18.85	34.05	27.09	98	0.527
476	3.54	18.89	34.13	500	3.52	18.90	34.15	27.17	91	0.625
571	3.44	18.93	34.20	600	3.40	18.94	34.22	27.24	84	0.716
761	3.22	18.96	34.25	800	3.17	18.96	34.25	27.30	79	0.878
952	2.86	19.01	34.34	1000	2.76	19.02	34.36	27.42	67	1.035
1143	2.47	19.04	34.40	1200	2.43	19.05	34.42	27.49	61	1.176
1432	2.33	19.08	34.47							

Table 2. (Continued)

Station Os 56

Date July 17,1959 Time 2003～2110 (S.M.T.) Latitude 54°55′N Longitude 164°20′E
Wind WSW 3 Weather o Air Temp. 10.2°C Sea WSW 3 Swell S 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	9.3	18.29	33.04	0	9.3	18.29	33.04	25.56	244	0
10	8.98	18.31	33.08	10	8.98	18.31	33.08	25.63	237	0.024
20	7.65	18.31	33.08	20	7.65	18.31	33.08	25.84	217	0.047
30	7.22	18.32	33.10	30	7.22	18.32	33.10	25.91	211	0.068
50	3.25	18.34	33.13	50	3.25	18.34	33.13	26.38	166	0.106
75	1.70	18.36	33.17	75	1.70	18.36	33.17	26.55	150	0.146
100	1.43	18.37	33.19	100	1.43	18.37	33.19	26.58	147	0.183
150	2.87	18.61	33.62	150	2.87	18.61	33.62	26.82	124	0.251
200	3.60	18.77	33.91	200	3.60	18.77	33.91	26.97	110	0.310
298	3.57	18.82	34.00	300	3.57	18.82	34.00	27.05	102	0.418
398	3.49	18.87	34.09	400	3.49	18.87	34.09	27.13	95	0.519
497	3.37	18.93	34.20	500	3.37	18.93	34.20	27.23	85	0.612
597	3.23	18.94	34.22	600	3.23	18.94	34.22	27.27	81	0.699
796	2.97	19.01	34.34	800	2.96	19.01	34.34	27.39	70	0.859
995	2.67	19.04	34.40	1000	2.66	19.04	34.40	27.46	63	1.003
1193	2.44	19.08	34.47	1200	2.43	19.08	34.47	27.53	57	1.136
1492	2.14	19.12	34.54	1500	2.13	19.12	34.54	27.62	48	1.315

Station Os 57

Date July 18,1959 Time 1148～1313 (S.M.T.) Latitude 53°54′N Longitude 164°16′E
Wind 0 Weather c Air Temp. 14.0°C Sea 0 Swell SSW 1 Col. 5 Tr. 13.5m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	10.3	18.01	32.54	0	10.3	18.01	32.54	25.00	297	0
10	9.36	18.02	32.56	10	9.36	18.02	32.56	25.18	280	0.029
20	7.14	18.25	32.97	20	7.14	18.25	32.97	25.82	219	0.054
30	4.28	18.33	33.12	30	4.28	18.33	33.12	26.28	175	0.074
50	2.03	18.33	33.12	50	2.03	18.33	33.12	26.49	155	0.107
75	1.29	18.38	33.21	75	1.29	18.38	33.21	26.61	144	0.144
100	1.19	18.40	33.24	100	1.19	18.40	33.24	26.64	141	0.180
150	2.07	18.48	33.39	150	2.07	18.48	33.39	26.70	135	0.249
200	3.61	18.73	33.84	200	3.61	18.73	33.84	26.91	116	0.313
252	3.59	18.79	33.95	300	3.53	18.82	34.00	27.06	101	0.424
336	3.49	18.85	34.05	400	3.42	18.88	34.11	27.15	93	0.523
420	3.41	18.89	34.13	500	3.31	18.89	34.13	27.18	90	0.617
503	3.31	18.89	34.13	600	3.18	18.93	34.19	27.25	83	0.707
671	3.08	18.96	34.25	800	2.84	19.01	34.34	27.40	69	0.868
839	2.76	19.02	34.36	1000	2.59	19.04	34.40	27.47	62	1.010
1007	2.59	19.04	34.40	1200	2.39	19.06	34.43	27.51	59	1.143
1258	2.33	19.07	34.45							

Table 2. (Continued)

Station Os 58

Date July 18, 1959 Time 1950～2053 (S.M.T.) Latitude 53°02′N Longitude 164°16′E
Wind 0 Weather o Air Temp. 11.0°C Sea 0 Swell SW 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	10.2	18.32	33.10	0	10.2	18.32	33.10	25.45	254	0
10	8.60	18.32	33.10	10	8.60	18.32	33.10	25.71	230	0.024
20	8.50	18.33	33.12	20	8.50	18.33	33.12	25.74	227	0.047
30	7.89	18.33	33.12	30	7.89	18.33	33.12	25.83	218	0.069
50	3.46	18.33	33.12	50	3.46	18.33	33.12	26.38	166	0.108
75	2.00	18.35	33.15	75	2.00	18.35	33.15	26.52	153	0.148
100	1.52	18.38	33.21	100	1.52	18.38	33.21	26.60	145	0.186
150	3.24	18.69	33.77	150	3.24	18.69	33.77	26.90	117	0.252
200	3.53	18.77	33.91	200	3.53	18.77	33.91	26.99	108	0.309
298	3.41	18.83	34.02	300	3.41	18.83	34.02	27.08	99	0.415
398	3.46	18.88	34.11	400	3.46	18.88	34.11	27.15	93	0.513
497	3.36	18.94	34.22	500	3.35	18.94	34.22	27.24	84	0.604
597	3.23	18.96	34.25	600	3.23	18.96	34.25	27.29	80	0.690
796	2.95	19.01	34.34	800	2.94	19.01	34.34	27.39	70	0.849
995	2.61	19.02	34.36	1000	2.60	19.02	34.36	27.43	66	0.996
1193	2.36	19.07	34.45	1200	2.35	19.07	34.45	27.52	58	1.132
1492	2.18	19.09	34.49	1500	2.18	19.09	34.49	27.57	53	1.318

Station Os 59

Date July 19, 1959 Time 1120～1257 (S.M.T.) Latitude 51°59′N Longitude 164°04′E
Wind S 2 Weather c Air Temp. 11.4°C Sea S 2 Swell SW 1 Col. 3 Tr. 13m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	9.5	18.28	33.03	0	9.5	18.28	33.03	25.51	249	0
10	8.84	18.28	33.03	10	8.84	18.28	33.03	25.61	239	0.024
20	8.02	18.28	33.03	20	8.02	18.28	33.03	25.74	227	0.047
30	5.80	18.32	33.10	30	5.80	18.32	33.10	26.10	192	0.068
50	2.93	18.32	33.10	50	2.93	18.32	33.10	26.39	165	0.104
75	1.76	18.32	33.10	75	1.76	18.32	33.10	26.49	155	0.136
96	1.39	18.34	33.13	100	1.41	18.35	33.15	26.56	149	0.174
144	2.42	18.57	33.55	150	2.62	18.60	33.60	26.83	123	0.242
191	3.36	18.76	33.89	200	3.38	18.77	33.91	27.00	107	0.300
249	3.44	18.79	33.95	300	3.42	18.83	34.02	27.08	99	0.406
332	3.39	18.86	34.07	400	3.37	18.92	34.18	27.22	86	0.502
415	—	18.92	34.18	500	3.30	18.94	34.22	27.25	83	0.590
497	3.30	18.94	34.22	600	3.19	18.97	34.27	27.31	78	0.674
672	3.06	18.99	34.31	800	2.83	19.00	34.33	27.38	71	0.832
844	2.72	19.01	34.34	1000	2.59	19.07	34.45	27.51	59	0.973
1019	2.57	19.07	34.45	1200	2.39	19.10	34.51	27.57	53	1.097
1296	2.30	19.11	34.52							

Table 2. (Continued)

Station Os 60

Date July 19,1959 Time 1930~2113 (S.M.T.) Latitude 51°02′N Longitude 164°18′E
Wind SSW 3 Weather b Air Temp. 9.8°C Sea SSW 3 Swell SSW 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	9.6	18.25	32.97	0	9.6	18.25	32.97	25.47	252	0
10	9.47	18.23	32.94	10	9.47	18.23	32.94	25.46	253	0.025
20	8.21	18.25	32.97	20	8.21	18.25	32.97	25.67	233	0.049
30	7.29	18.25	32.97	30	7.29	18.25	32.97	25.80	221	0.072
50	3.68	18.28	33.03	50	3.68	18.28	33.03	26.27	176	0.112
75	2.45	18.35	33.15	75	2.45	18.35	33.15	26.48	156	0.154
99	2.03	18.36	33.17	100	2.04	18.36	33.17	26.53	152	0.193
144	2.93	18.65	33.69	150	3.07	18.68	33.75	26.90	117	0.261
191	3.53	18.76	33.89	200	3.57	18.77	33.91	26.98	109	0.318
285	3.58	18.84	34.04	300	3.57	18.84	34.04	27.08	99	0.425
375	3.48	18.86	34.07	400	3.48	18.87	34.09	27.14	94	0.524
476	3.43	18.91	34.16	500	3.39	18.92	34.18	27.21	87	0.617
561	3.27	18.96	34.25	600	3.23	18.98	34.29	27.32	77	0.703
667	3.20	18.99	34.31	800	2.99	19.01	34.34	27.39	70	0.859
740	3.09	19.00	34.33	1000	2.71	19.06	34.43	27.48	62	1.002
868	2.84	19.02	34.36	1200	2.48	19.09	34.49	27.54	56	1.133
938	2.80	19.04	34.40							
1128	2.56	19.08	34.47							
1416	2.24	19.10	34.51							

Station Os 61

Date July 20,1959 Time 1125~1232 (S.M.T.) Latitude 51°11′N Longitude 162°48′E
Wind W 3 Weather b Air Temp. 12.5°C Sea W 3 Swell WSW 1 Col. 4 Tr. 15m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	10.5	18.29	33.04	0	10.5	18.29	33.04	25.37	262	0
10	9.24	18.29	33.03	10	9.24	18.28	33.03	25.56	244	0.025
20	7.82	18.29	33.04	20	7.82	18.29	33.04	25.78	223	0.048
30	6.53	18.32	33.10	30	6.53	18.32	33.10	26.01	201	0.069
50	3.28	18.35	33.15	50	3.28	18.35	33.15	26.41	163	0.105
75	2.07	18.35	33.15	75	2.07	18.35	33.15	26.51	154	0.145
99	1.29	18.38	33.21	100	1.30	18.38	33.21	26.61	144	0.182
149	2.11	18.50	33.42	150	2.13	18.50	33.46	26.73	133	0.252
199	3.35	18.72	33.82	200	3.36	18.72	33.82	26.93	114	0.315
288	3.49	18.82	34.00	300	3.48	18.83	34.02	27.08	99	0.424
385	3.37	18.89	34.13	400	3.36	18.90	34.15	27.19	89	0.521
481	3.27	18.92	34.18	500	3.26	18.93	34.20	27.24	84	0.610
578	3.16	18.99	34.31	600	3.14	18.99	34.31	27.34	75	0.693
770	2.92	19.00	34.33	800	2.88	19.01	34.34	27.40	69	0.846
964	2.59	19.05	34.42	1000	2.53	19.06	34.43	27.50	60	0.985
1157	2.41	19.10	34.51	1200	2.39	19.01	34.34	27.43	66	1.122
1448	2.31	19.14	34.58							

Table 2. (Continued)

Station Os 62

Date July 20, 1959 Time 1948~2110 (S.M.T.) Latitude 51°11′N Longitude 161°23′E
Wind WSW 4 Weather b Air Temp. 12.0°C Sea WSW 4 Swell WSW 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	11.2	18.10	32.70	0	11.2	18.10	32.70	24.98	299	0
10	11.02	18.10	32.70	10	11.02	18.10	32.70	25.01	296	0.030
20	7.85	18.18	32.85	20	7.85	18.18	32.85	25.63	237	0.057
30	3.55	18.31	33.08	30	3.55	18.31	33.08	26.32	172	0.077
49	1.93	18.32	33.10	50	1.90	18.32	33.10	26.49	155	0.110
74	1.18	18.35	33.15	75	1.16	18.35	33.15	26.58	147	0.148
93	1.02	18.37	33.19	100	1.10	18.39	33.22	26.64	141	0.184
139	1.84	18.47	33.37	150	2.20	18.62	33.64	26.89	117	0.249
185	3.47	18.72	33.82	200	3.53	18.74	33.86	26.94	113	0.307
261	3.56	18.79	33.95	300	3.51	18.83	34.02	27.08	99	0.414
348	3.47	18.85	34.05	400	3.39	18.90	34.12	27.19	89	0.511
436	3.35	18.91	34.16	500	3.26	18.95	34.15	27.27	81	0.599
525	3.22	18.96	34.25	600	3.10	18.99	34.31	27.35	74	0.680
710	2.91	19.01	34.34	800	2.67	19.03	34.38	27.44	65	0.827
899	2.46	19.06	34.43	1000	2.41	19.07	34.45	27.52	58	0.959
1088	2.40	19.07	34.45	1200	2.33	19.08	34.47	27.56	54	1.082
1373	2.26	19.10	34.51							

Station Os 63

Date July 21, 1959 Time 1140~1248 (S.M.T.) Latitude 51°15′N Longitude 159°53′E
Wind WSW 4 Weather o Air Temp. 12.1°C Sea WSW 4 Swell WSW 1 Col. 4 Tr. 15m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	11.1	17.99	32.50	0	11.1	17.99	32.50	24.83	313	0
9	10.21	17.99	32.50	10	10.00	17.99	32.50	25.03	294	0.030
18	6.96	18.07	32.65	20	6.26	18.10	32.70	25.73	228	0.056
27	4.92	18.28	33.03	30	4.55	18.30	33.06	26.21	182	0.077
44	2.81	18.35	33.15	50	2.30	18.36	33.17	26.51	154	0.111
66	1.58	18.37	33.19	75	1.46	18.38	33.21	26.60	145	0.148
88	1.39	18.40	33.24	100	1.39	18.41	33.26	26.64	141	0.184
132	1.40	18.41	33.26	150	2.00	18.48	33.39	26.74	135	0.253
177	3.44	18.69	33.77	200	3.53	18.73	33.84	26.94	113	0.313
249	3.61	18.77	33.91	300	3.58	18.81	33.98	27.03	104	0.424
332	3.55	18.84	34.04	400	3.51	18.87	34.09	27.13	95	0.526
416	3.51	18.88	34.11	500	3.39	18.95	34.24	27.27	81	0.617
500	3.39	18.95	34.24	600	3.19	18.99	34.31	27.35	74	0.698
672	3.06	19.00	34.33	800	2.89	19.02	34.36	27.41	68	0.849
847	2.83	19.02	34.36	1000	2.68	19.06	34.43	27.49	61	0.989
1025	2.65	19.06	34.43	1200	2.46	19.09	34.49	27.54	56	1.117
1306	2.32	19.10	34.51							

Table 2. (Continued)

Station Os 64

Date July 21,1959 Time 1938～2029 (S.M.T.) Latitude 50°35′N Longitude 159°00′E
Wind SSW 2 Weather c Air Temp. 9.9°C Sea SSW 2 Swell SSW 1 Col. 4 Tr. 9.5m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	8.3	18.17	32.82	0	8.3	18.17	32.83	25.53	247	0
10	7.84	18.15	32.79	10	7.84	18.15	32.79	25.58	242	0.024
20	4.06	18.22	32.92	20	4.06	18.22	32.92	26.09	193	0.046
30	1.24	18.26	32.99	30	1.24	18.26	32.99	26.44	160	0.064
50	0.42	18.31	33.08	50	0.42	18.31	33.08	26.57	148	0.095
75	0.78	18.33	33.12	75	0.78	18.33	33.12	26.58	147	0.132
99	0.75	18.35	33.15	100	0.75	18.35	33.15	26.60	145	0.169
149	0.85	18.36	33.17	150	0.86	18.36	33.17	26.61	144	0.241
199	0.98	18.37	33.19	200	0.98	18.37	33.19	26.62	143	0.313
291	0.65	18.45	33.33	300	0.75	18.46	33.35	26.75	131	0.450
388	2.66	18.56	33.53	400	2.82	18.58	33.57	26.79	127	0.580
485	3.51	18.73	33.84	500	3.54	18.75	33.87	26.95	112	0.702
582	3.57	18.81	33.98	600	3.57	18.82	34.00	27.05	102	0.813
776	3.46	18.90	34.15	800	3.43	18.91	34.16	27.19	89	1.014
970	3.17	18.96	34.25	1000	3.12	18.97	34.27	27.31	78	1.194
1164	2.93	19.01	34.34	1200	2.88	19.02	34.36	27.41	68	1.355
1457	2.49	19.07	34.45							

Station Os 65

Date July 22,1959 Time 1148～1256 (S.M.T.) Latitude 49°35′N Longitude 159°00′E
Wind SE 3 Weather r Air Temp. 10.3°C Sea SE 3 Swell SSE 1 Col. 5 Tr. 7m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	10.5	18.01	32.54	0	10.5	18.01	32.54	24.96	301	0
10	9.79	18.18	32.85	10	9.79	18.18	32.85	25.33	266	0.028
19	7.69	18.23	32.94	20	7.47	18.26	32.99	25.79	222	0.052
29	5.50	18.30	33.06	30	5.28	18.30	33.06	26.13	190	0.073
49	2.91	18.33	33.12	50	2.78	18.33	33.12	26.43	161	0.108
74	1.51	18.34	33.13	75	1.50	18.34	33.13	26.54	151	0.147
94	1.22	18.35	33.15	100	1.21	18.36	33.17	26.59	146	0.184
140	1.31	18.41	33.26	150	1.55	18.46	33.35	26.70	135	0.255
187	3.13	18.63	33.66	200	3.24	18.66	33.71	26.84	122	0.320
263	3.59	18.77	33.91	300	3.56	18.81	33.98	27.04	103	0.435
351	3.49	18.84	34.04	400	3.47	18.87	34.09	27.14	94	0.537
443	3.43	18.89	34.13	500	3.38	18.91	34.16	27.20	88	0.632
545	3.32	18.92	34.18	600	3.28	18.93	34.20	27.24	84	0.722
721	3.04	18.97	34.27	800	2.90	18.98	34.29	27.33	76	0.892
909	2.72	19.01	34.34	1000	2.63	19.04	34.40	27.46	63	1.043
1095	2.54	19.06	34.43	1200	2.41	19.07	34.45	27.52	58	1.176
1380	2.24	19.09	34.49							

Table 2. (Continued)

Station Os 66

Date July 22,1959 Time 1956～2108 (S.M.T.) Latitude 48°35′N Longitude 159°00′E
Wind E 1 Weather f Air Temp. 10.7°C Sea E 1 Swell SE 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	10.8	18.12	32.74	0	10.8	18.12	32.34	25.20	278	0
10	9.33	18.21	32.90	10	9.33	18.21	32.90	25.46	253	0.027
20	7.51	18.24	32.95	20	7.51	18.24	32.95	25.76	225	0.051
30	6.00	18.28	33.03	30	6.00	18.28	33.03	26.02	200	0.072
50	2.56	18.33	33.12	50	2.56	18.33	33.12	26.47	157	0.108
75	1.98	18.34	33.13	75	1.98	18.34	33.13	26.50	154	0.147
100	1.42	18.34	33.13	100	1.42	18.34	33.13	26.57	148	0.185
150	2.63	18.60	33.60	150	2.63	18.60	33.60	26.82	124	0.253
200	3.33	18.75	33.87	200	3.33	18.75	33.87	26.98	109	0.312
298	3.49	18.85	34.05	300	3.49	18.85	34.05	27.11	97	0.418
398	3.36	18.89	34.13	400	3.36	18.89	34.13	27.18	90	0.514
497	3.29	18.92	34.18	500	3.29	18.92	34.18	27.23	86	0.605
597	3.14	18.96	34.25	600	3.14	18.96	34.25	27.30	79	0.691
796	2.86	19.02	34.36	800	2.85	19.02	34.36	27.40	69	0.848
995	2.54	19.07	34.45	1000	2.53	19.07	34.45	27.51	59	0.987
1193	2.37	19.09	34.49	1200	2.36	19.09	34.49	27.56	54	1.112

Station Os 67

Date July 23,1959 Time 0753～0900 (S.M.T.) Latitude 47°43′N Longitude 157°10′E
Wind SSW 1 Weather f Air Temp. 13.7°C Sea SSW 1 Swell SSE 1 Col. 6 Tr. 8m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	12.3	18.19	32.86	0	12.3	18.19	32.86	24.90	307	0
10	9.08	18.20	32.88	10	9.08	18.20	32.88	25.47	252	0.028
20	7.76	18.24	32.95	20	7.76	18.24	32.95	25.71	230	0.052
30	5.39	18.28	33.03	30	5.39	18.28	33.03	26.09	193	0.073
49	2.61	18.33	33.12	50	2.56	18.33	33.12	26.44	160	0.108
74	1.66	18.34	33.13	75	1.67	18.34	33.13	26.52	153	0.147
95	1.36	18.34	33.13	100	1.35	18.34	33.13	26.55	150	0.185
142	2.34	18.54	33.50	150	2.56	18.57	33.55	26.79	127	0.255
189	3.31	18.72	33.82	200	3.39	18.74	33.86	26.96	111	0.315
260	3.49	18.80	33.96	300	3.50	18.83	34.02	27.08	99	0.422
346	3.49	18.86	34.07	400	3.39	18.89	34.12	27.18	90	0.519
433	3.33	18.91	34.16	500	3.27	18.94	34.22	27.24	84	0.609
521	3.23	18.95	34.24	600	3.10	18.98	34.29	27.34	75	0.692
698	2.92	19.01	34.34	800	2.71	19.03	34.38	27.44	65	0.841
880	2.58	19.04	34.40	1000	2.48	19.05	34.42	27.49	61	0.977
1067	2.44	19.06	34.43	1200	2.31	19.09	34.49	27.56	54	1.103
1350	2.18	19.12	34.54							

6. Data on Dissolved Oxygen and Phosphate
(溶存酸素及び燐酸塩記録)

Measurement of dissolved oxygen and phosphate was performed at stations from Os 1 to Os 36 (except Os 26) but not after Os 37.

Sample water was collected from all regular depths from the surface to about 1500 m.

Content of dissolved oxygen was measured by ordinary Winkler method aboard the ship.

Content of phosphate was measured aboard the ship by means of Photoelectric Photometer Model 7 A manufactured by Tokyo Photo Electric Laboratory Co., Ltd.

Measurement aboard and data processing were made by M. Oguro.

Table 3. Data on dissolved oxygen and phosphate in the "Oshoro Maru" cruise 44 to the Bering Sea in June–July 1959

Station Os 1			Station Os 2		
Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)	Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	6.66	0.50	0	7.53	0.99
10	6.49	0.48	10	7.60	0.78
20	6.84	0.57	19	8.21	0.86
30	6.91	0.58	29	7.91	1.05
50	6.85	0.85	49	8.18	1.26
73	7.31	1.18	74	7.82	1.29
97	6.55	1.11	95	7.32	1.36
145	6.37	1.51	143	4.68	1.26
193	5.25	1.84	190	4.20	1.33
275	3.79	1.89	283	2.59	1.36
366	2.68	2.13	377	1.44	1.35
460	1.90	2.13	471	1.47	1.19
550	1.28	2.08	566	1.04	2.13
737	0.95	2.31	754	0.79	2.23
917	1.03	2.35	943	0.84	1.10
1100	1.21	2.36	1134	1.11	1.19
1375	1.18	2.27	1419	1.33	1.19

Table 3. (Continued)

Station Os 3

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.70	0.80
10	7.89	0.85
19	7.95	1.09
29	7.89	1.36
48	7.93	1.81
72	6.71	1.75
93	6.88	1.88
139	5.44	2.05
185	4.74	2.00
260	4.29	2.34
346	3.07	2.53
433	1.68	2.83
520	1.38	2.83
693	0.99	2.68
866	1.60	2.75
1040	1.39	2.53
1302	1.16	2.68

Station Os 4

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	8.26	1.27
9	8.44	1.66
18	8.73	1.70
28	8.45	1.46
46	8.55	1.72
70	7.01	1.87
91	6.83	1.55
137	5.08	1.66
183	4.38	1.76
265	1.52	1.66
353	1.33	1.98
441	0.94	2.09
539	1.01	2.09
706	1.10	1.98
883	1.15	1.66
1059	1.08	1.98
1324	1.04	2.62

Station Os 5

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.92	
10	7.94	
19	8.17	
29	8.42	
49	8.59	
74	8.57	
98	7.64	
147	4.64	
187	2.19	
273	1.36	
264	1.04	
456	0.76	
547	0.84	
731	—	
915	1.34	
1102	0.87	
1386	1.44	

Station Os 6

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	8.47	1.23
10	8.48	1.31
19	8.42	1.38
29	8.14	1.31
48	7.61	1.76
72	7.04	1.83
88	6.99	1.83
132	5.88	1.88
177	5.05	1.83
204	4.57	2.06
273	3.52	2.07
341	2.74	2.21
361	2.11	1.98
490	1.60	2.21
619	0.93	2.13
977	1.18	2.10

Table 3. (Continued)

Station Os 7

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.53	1.71
10	7.74	1.59
19	7.63	1.46
29	7.81	1.65
49	7.73	1.71
74	7.84	1.65
90	7.75	1.84
135	4.77	2.15
180	3.26	2.55
254	0.98	2.63
339	0.74	2.55
679	0.69	2.79
849	0.50	2.43
1020	0.64	2.43
1280	1.41	2.49

Station Os 8

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.69	1.65
10	7.83	1.78
20	7.87	1.72
30	7.71	1.85
50	7.79	1.90
75	7.86	1.91
100	7.67	1.95
150	7.10	1.98
200	6.07	2.11
294	3.31	2.37
394	1.55	2.52
493	0.85	2.73
593	0.73	2.65
792	0.61	2.65
991	0.54	2.59
1189	0.94	2.61
1488	1.34	2.65

Station Os 9

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.37	1.43
10	7.24	1.85
20	7.45	1.85
30	7.44	1.92
50	7.68	1.85
75	7.70	2.06
96	7.60	2.09
144	4.02	2.27
192	2.37	2.58
282	1.05	2.56
376	0.73	2.58
470	0.75	2.58
564	0.64	2.65
740	0.99	2.84
917	0.62	2.94

Station Os 10

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.13	1.52
10	6.99	1.79
20	7.31	1.94
30	7.10	1.65
50	7.12	1.78
75	7.13	1.78
97	7.10	1.78
194	3.61	2.31
246	2.62	2.46
328	1.87	2.59
447	0.75	2.46
693	0.88	2.11
869	0.93	2.11
1042	0.90	2.11
1310	0.83	2.17

Table 3. (Continued)

Station Os 11

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	8.28	1.78
10	7.29	1.85
19	7.33	2.27
29	6.44	2.34
49	8.45	1.99
74	7.57	1.71
94	7.36	1.71
141	5.01	2.13
188	2.66	2.27
278	1.69	2.72
371	1.30	3.02
464	1.03	3.19
557	0.90	3.32
743	—	—
932	0.71	2.72
1121	1.27	3.02
1416	1.44	3.02

Station Os 12

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	6.97	1.52
10	7.39	1.65
20	7.38	1.85
30	6.53	1.72
49	8.52	1.91
74	7.37	1.65
82	7.17	1.72
123	4.50	2.11
164	3.15	1.59
201	2.33	2.04
268	2.00	1.98
336	0.98	2.24
405	0.79	2.31
546	0.71	1.85
690	0.74	1.72
835	1.01	1.78
1272	1.71	1.79

Station Os 13

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.18	1.53
9	7.19	1.59
18	7.14	1.65
28	7.24	1.65
46	7.16	1.53
69	7.25	1.71
97	7.22	1.71
145	4.93	1.96
193	3.07	2.09
271	1.49	2.70
361	0.93	2.73
449	0.90	2.76
531	0.80	2.49
694	0.63	2.55
859	0.94	2.63
1022	0.96	2.49

Station Os 14

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.22	1.29
9	7.19	1.57
18	7.21	1.43
28	7.20	1.22
46	7.22	1.43
69	7.30	1.85
72	7.25	1.29
108	3.71	1.22
144	1.04	1.50
185	0.82	1.36
248	0.57	1.29
309	0.79	1.43
370	0.66	1.57
498	0.56	1.36
628	0.69	1.29
770	0.95	1.57
1003	0.93	1.71

Table 3. (Continued)

Station Os 15

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.21	1.38
10	7.01	1.51
19	7.06	1.58
29	7.16	1.45
48	7.20	1.99
72	7.18	1.92
91	7.05	1.99
136	4.87	2.19
182	1.92	2.48
241	1.20	2.05
321	0.72	2.99
401	0.73	2.84
582	0.68	3.15
650	0.60	2.75
837	0.53	2.92
1020	0.77	2.92
1295	1.01	3.00

Station Os 16

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.33	1.34
10	7.29	1.28
20	7.34	1.22
30	7.58	1.24
50	6.98	1.53
75	6.24	1.90
98	5.98	2.00
147	5.01	2.08
196	3.02	2.11
280	1.57	2.55
374	0.94	2.61
467	0.75	2.67
560	0.63	2.73
747	0.54	2.76
934	0.99	2.79
1122	0.64	2.82
1406	1.38	2.84

Station Os 17

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.42	1.59
10	7.56	1.61
19	6.82	1.63
29	8.34	1.71
49	6.35	1.75
74	7.96	1.78
91	5.81	1.80
136	3.70	2.00
182	1.81	2.06
252	1.55	2.14
336	0.98	2.15
419	0.82	2.36
502	0.60	2.35
670	0.57	1.90
835	1.46	1.96
1000	0.68	1.98

Station Os 18

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.31	1.46
10	7.19	1.40
20	7.40	1.48
30	7.29	1.49
50	7.33	1.78
75	7.24	2.05
96	7.06	1.96
144	6.94	2.09
192	2.35	2.43
286	0.92	2.49
388	0.80	2.43
477	0.64	2.50
583	0.63	2.51
777	0.88	2.70
972	0.62	2.91
1149	0.70	2.78
1462	0.82	2.98

Table 3. (Continued)

Station Os 19

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.24	1.53
10	7.25	1.78
20	7.32	1.59
30	7.71	1.65
50	7.15	1.96
75	7.15	1.84
98	7.05	2.15
148	7.01	2.09
197	5.68	2.10
294	2.08	2.36
390	1.05	2.23
488	0.96	2.23
586	0.65	2.30
780	0.68	2.28
976	0.69	2.30
1170	0.69	2.30
1463	0.81	2.30

Station Os 20

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.23	1.59
10	7.14	1.78
20	7.27	1.53
30	7.22	1.71
50	7.25	1.71
75	7.06	1.78
96	6.25	1.78
144	6.76	1.84
192	4.08	1.65
262	1.95	1.70
350	0.91	1.73
439	0.93	1.75
525	0.62	1.65
698	0.57	1.90
869	1.13	1.93
1039	1.94	1.78
1296	1.02	1.90

Station Os 21

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.40	1.64
10	7.23	1.71
20	7.29	1.71
30	7.29	1.74
50	7.14	1.78
75	6.84	1.89
95	7.18	1.96
143	6.10	1.97
190	5.89	1.99
274	3.34	2.02
367	1.85	2.27
460	2.56	2.65
552	0.74	2.67
740	0.70	2.69
928	1.51	2.79
1119	1.03	2.86
1403	1.00	2.49

Station Os 22

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	6.42	1.77
10	6.40	1.62
20	6.37	1.84
30	6.51	1.91
50	6.00	1.99
75	5.88	2.06
94	5.73	2.20
140	5.00	2.13
187	4.39	1.77
238	3.49	2.06
318	2.77	2.09
397	1.59	1.91
476	1.11	1.91
598	1.59	1.77
657	0.79	2.13
935	0.69	2.15

Table 3. (Continued)

Station Os 23

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	6.96	1.46
10	6.91	1.85
20	6.95	1.07
30	6.94	1.13
50	6.27	1.12
75	6.33	1.85
99	4.90	1.78
149	3.12	2.11
199	2.25	2.52
250	1.79	2.39
334	0.82	2.52
419	0.95	2.50
500	1.05	2.41
660	0.61	2.59
815	0.91	2.65
980	0.59	2.31
1240	0.67	2.46

Station Os 24

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.14	1.53
10	7.05	1.34
19	7.13	1.38
29	7.02	1.41
49	7.15	1.16
74	6.89	1.46
98	6.41	1.53
147	1.85	2.13
196	1.09	2.16
293	0.63	1.61
391	0.60	1.76
489	0.66	1.83
587	0.79	2.06
782	0.50	2.13
979	1.14	2.06
1176	1.57	1.83
1470	1.08	1.91

Station Os 25

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.12	1.68
10	7.01	1.71
20	7.06	1.76
30	7.14	1.77
50	7.08	1.76
75	7.75	1.95
98	7.53	1.98
147	7.15	2.01
196	5.53	1.98
283	3.51	3.15
378	1.10	2.76
473	1.21	2.91
568	0.99	2.99
758	0.67	3.06
945	0.89	3.06
1140	1.00	2.99
1428	1.12	2.99

Station Os 27

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.20	1.53
10	7.31	1.83
20	7.13	1.61
30	7.14	1.98
50	7.14	1.83
75	7.26	1.83
96	6.63	1.68
144	7.31	1.91
191	3.82	2.43
259	2.06	2.67
344	1.42	2.99
430	1.01	3.02
513	1.00	3.03
672	0.75	3.10
828	1.30	3.15
985	1.03	3.06
1205	0.85	3.06

Table 3. (Continued)

Station Os 28

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.15	1.57
10	7.09	1.64
20	7.24	1.36
30	7.17	1.57
50	7.13	1.50
75	7.25	1.99
100	7.08	1.71
150	3.02	2.41
200	2.13	2.49
299	1.19	2.79
399	0.85	2.58
499	1.04	2.79
599	1.10	2.80
798	0.74	2.92
998	1.18	2.72
1197	1.01	2.79
1496	1.22	2.86

Station Os 29

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.05	1.53
10	7.00	1.61
20	7.12	1.53
30	7.11	1.56
50	7.10	1.68
75	7.13	1.76
100	7.13	1.68
150	5.92	2.13
200	4.52	2.21
300	5.76	2.24
400	1.16	2.27
500	0.83	2.28
600	0.75	2.13
800	0.69	2.13
999	1.31	2.21
1199	0.93	2.28
1499	1.13	2.31

Station Os 30

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.67	1.53
10	7.02	1.76
20	7.15	1.79
30	7.27	1.71
50	7.09	1.68
75	7.14	1.64
94	7.12	1.83
141	4.24	2.36
188	2.35	2.84
285	1.21	2.91
381	1.01	2.84
476	1.02	2.76
572	0.68	2.67
762	1.01	2.84
954	1.34	2.76
1145	1.02	2.43
1432	1.10	2.67

Station Os 31

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.18	1.38
10	7.31	1.41
20	7.39	1.44
30	7.12	1.47
50	7.05	1.76
75	7.12	1.80
98	6.56	1.94
147	3.67	2.13
196	3.04	2.25
297	0.98	2.28
396	0.68	2.28
495	0.78	2.10
594	0.74	1.95
779	1.21	2.06
939	0.98	2.21
1179	0.88	2.06

Table 3. (Continued)

Station Os 32

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	6.89	1.08
10	7.23	1.56
20	7.08	1.23
30	7.11	1.26
50	6.89	1.41
75	6.27	1.68
99	5.00	2.28
149	3.87	2.76
198	1.39	2.79
290	0.71	2.84
386	0.68	2.87
482	0.91	2.90
580	1.08	2.58
773	1.01	2.87
969	1.00	2.84
1163	0.81	2.26
1460	1.13	2.84

Station Os 33

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	6.37	1.74
10	6.52	1.78
20	6.01	1.81
30	6.46	1.92
49	5.90	1.85
74	4.47	1.97
100	4.16	1.97
145	4.12	2.26
193	4.17	1.97
297	3.03	2.12
397	2.12	2.05
496	1.98	1.89
596	1.40	2.05
794	0.57	2.43
993	1.56	2.93
1192	1.21	2.36
1490	0.99	2.20

Station Os 34

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.20	1.55
10	7.11	1.52
20	7.39	1.51
30	7.28	1.70
50	6.85	1.91
75	6.63	2.13
99	7.26	2.18
149	7.08	2.19
199	3.29	2.20
290	2.26	2.58
387	1.39	2.74
465	1.31	2.77
557	1.03	2.96
746	0.63	2.35
936	0.95	2.91
1137	0.75	2.92
1415	0.76	2.92

Station Os 35

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.22	0.78
10	7.18	0.81
19	7.47	0.81
29	7.34	1.19
49	6.95	1.55
74	6.54	1.70
84	6.63	1.70
126	6.19	1.84
168	6.24	2.06
258	5.76	1.84
344	4.49	2.35
431	2.81	1.99
517	2.18	2.20
693	0.67	2.20
877	1.28	2.21
1061	0.63	2.21
1343	0.74	2.06

Table 3. (Continued)

Station Os 36

Depth (m)	O_2 (cc/l)	Phosphate-P (μg-atoms/l)
0	7.19	0.64
10	7.19	0.64
20	7.47	0.71
30	7.18	1.41
50	6.74	1.70
75	6.21	1.90
95	5.91	1.99
143	5.95	2.20
190	5.76	2.23
285	3.85	2.49
381	2.21	2.67
477	1.91	2.74
572	0.95	2.60
765	0.90	2.62
958	1.05	2.67
1151	0.78	2.63
1445	0.62	2.67

7. Data on Radio-Activity of Natural Sea Water
（自然海水の放射能記録）

A liter of water was dipped from the surface at hydrographic stations from Os 1 to Os 67, but not Os 26, and brought to the University by keeping in plastic bottles.

Radio-activity was measured by M. Oguro with the carrier method in the University.

The efficiency of the G-M counter used was kept at 5×10^{-3} mμc/cpm.

Table 4. Data on radio-activity of natural sea water in the "Oshoro Maru" cruise 44 to the Bering Sea in June-July 1959

Station	Radio-activity*	Station	Radio-activity*
Os 1	1.4	Os 36	-1.2
Os 2	-1.8	Os 37	-3.6
Os 3	-1.2	Os 38	-2.2
Os 4	1.3	Os 39	-1.0
Os 5	-2.0	Os 40	-2.2
Os 6	-1.4	Os 41	-0.8
Os 7	-1.8	Os 42	-4.4
Os 8	0.8	Os 43	-1.0
Os 9	-3.8	Os 44	2.0
Os 10	-1.0	Os 45	-6.4
Os 11	3.6	Os 46	1.0
Os 12	-0.4	Os 47	5.4
Os 13	-0.4	Os 48	3.2
Os 14	-1.8	Os 49	-1.4
Os 15	1.4	Os 50	0.8
Os 17	1.6	Os 51	1.0
Os 18	3.0	Os 52	-0.8
Os 19	-2.2	Os 53	-1.4
Os 20	-0.8	Os 54	-0.6
Os 21	-0.6	Os 55	1.6
Os 22	-1.8	Os 56	1.4
Os 23	2.6	Os 57	0
Os 24	-1.6	Os 58	1.2
Os 25	3.4	Os 59	0.6
Os 27	5.6	Os 60	3.6
Os 28	2.2	Os 61	3.2
Os 29	-4.2	Os 62	4.8
Os 30	-2.6	Os 63	2.4
Os 31	-4.6	Os 64	-0.2
Os 32	-3.6	Os 65	0.6
Os 33	-1.8	Os 66	-2.6
Os 34	-3.0	Os 67	0.2
Os 35	-3.6		

* Back-scatterings wave 51.8± 1.0

8. Data on Marine Bacteria
(海洋細菌記録)

Sample water was collected with G-Z samplers usually from 0, 10, 20, 30, 50, 75, 100, 150, 200, 500, 750 and 1000 meter depths (by length of wire), at 20 stations.

Samples were incubated in Medium 2216E (Morita & ZoBell, 1955; Deep Sea Research, Vol. 3, pp. 66-73) at 25 °C for 6 days, and then the number of bacterial colonies developed was counted.

These cultures were stored in a refrigerator on board to bring back to the University. Isolation of strains was carried out at the laboratory after returning.

The above processing was done by T. Kimura and T. Matsuura.

Table 5. Vertical distribution of marine bacteria taken on the "Oshoro Maru" cruise 44 to the Bering Sea in June-July 1959 (Number of bacterial colonies "Standard Plate Count" per 1 cc of sea water)

Station	Os 1		Os 4		Os 7		Os 10		Os 13	
Position	42°00′N 146°00′E		45°03′N 151°32′E		48°00′N 156°59′E		47°42′N 163°31′E		48°00′N 170°00′E	
Date, hour	June 9, 1800		June 11, 1025		June 13, 0030		June 14, 1800		June 16, 1730	
	Depth (m)	Number of bacteria	Depth (m)	Number of bacteria	Depth (m)	Number of bacteria	Depth (m)	Number of bacteria	Depth (m)	Number of bacteria
	0	110	0	50	0	140	0	∞	0	43
	10	70	9	50	8	0	9	∞	9	0
	20	130	18	520	16	3	18	33	18	11
	30	41000	28	160	24	260	27	13	27	930
	49	50	46	110	41	0	43	660	47	1
	74	60	68	60	63	0	65	350	—	—
	98	70	91	60	83	0	87	580	94	1
	148	40	137	10	124	310	130	20	141	19
	197	40	174	100	—	—	173	59	188	1
	450	30	431	20	414 ?	3	—	--	439	35
	—	—	656	570	629	270	643	3	694	71
	—	—	873	160	839	29	959	3600	849	0

Station	Os 17		Os 20				Os 22		Os 23	
Position	55°00′N 171°20′E		53°16′N 179°04′E		53°00′N 179°00′E		52°01′N 179°30′W		51°00′N 180°00′	
Date, hour	June 19, 1350		June 22, 1930		June 73, 1600		June 24, 1530		June 24, 2330	
	Depth (m)	Number of bacteria	Depth (m)	Number of bacteria	Depth (m)	Number of bacteria	Depth (m)	Number of bacteria	Depth (m)	Number of bacteria
	0	40	0	450	0	760	0	15	0	86
	9	23	9	0	9	270	8	0	9	140
	18	11	18	86	18	2	16	12	18	13
	27	2	27	0	27	38	24	0	27	15
	43	4	46	0	46	29	41	10	43	24
	—	—	68	41	68	0	63	140	65	0
	87	16	91	1	91	0	83	77	87	250
	—	—	137	1	137	71	124	0	130	0
	173	170	183	0	183	2	166	63	173	73
	419	72	429	6400	457 ?	4400	397	1400	409	130
	670	4	648	0	676 ?	2	548	3	660	200
	825	210	857	0	914 ?	2	647	4	805	2

Table 5. (Continued)

Station	Os 27		Os 31		Os 34		Os 40		Os 43	
Position	48°32′N 177°20′W		50°25′N 171°19′W		54°10′N 172°00′W		57°01′N 174°30′W		57°38′N 177°59′E	
Date, hour	June 26, 1930		June 28, 2125		June 30, 1030		July 8, 1720		July 11, 1210	
	Depth (m)	Number of bacteria	Depth (m)	Number of bacteria	Depth (m)	Number of bacteria	Depth (m)	Number of bacteria	Depth (m)	Number of bacteria
	0	59	0	670	0	1	0	∞	0	37
	9	370	10	880	10	0	10	49	9	3
	18	1900	20	0	20	78	20	36	18	3
	27	500	30	130	29	2500	30	680	27	120
	46	71	49	0	49	2	49	66	47	10
	68	66	74	0	73	3	74	0	71	0
	91	15	98	1	97	23	98	1	94	1
	137	570	—	—	146	18	148	250	141	1
	183	910	197	5	194	3	197	2	188	9
	420	4	495	86	455	9300	485	19	461 ?	0
	622	1	729	1	694	2	744	370	705 ?	3200
	825	54	924	0	926	25	938	6	940 ?	440

Stations	Os 46		Os 50		Os 53		Os 57		Os 59	
Position	58°19′N 174°50′E		57°19′N 169°58′E		56°20′N 166°18′E		53°54′N 164°16′E		51°59′N 164°04′E	
Date, hour	July 13, 1520		July 15, 1230		July 16, 2035		July 18, 1320		July 19, 1310	
	Depth (m)	Number of bacteria	Depth (m)	Number of bacteria	Depth (m)	Number of bacteria	Depth (m)	Number of bacteria	Depth (m)	Number of bacteria
	0	11	0	7	0	75	0	55	0	100
	7	17	10	58	9	14	9	400	8	3
	14	69	20	0	18	46	18	4900	16	0
	21	2	30	130	27	0	27	12	24	0
	37	61	50	27	46	7	47	0	—	—
	56	1	75	11	68	0	71	590	64	0
	74	22	98	700	91	56	100	850	85	17
	141	1	149	1400	137	0	141	5	127	0
	149	4	198	2	183	47	188	210	170	730
	352	8	430	0	479	45	—	—	405	0
	541	23	644	0	732	120	621	25	622	2
	733	35	863	180	969	0	829	0	844	0

9. Data on Plankton Collected with a Fine Mesh Net
(細目ネット採集プランクトン記録)

Vertical hauls with a fine mesh net, 30 cm × 150 cm, conical, made of bolting silk XX 13, having approximately 0.11 mm mesh aperture, were carried out from about 100 meter depth to the surface once at each hydrographic station.

A flow-meter was mounted at the center of the mouth ring of the net to register the quantity of water filtered.

Displacement volume of the samples was measured by means of aspiration filtering apparatus, and wet weight of the samples was obtained by weighing the samples retained on the filter paper of this apparatus.

Dominant forms occurring in the samples were recorded.

The measurement was made at the Hokkaido Regional Fisheries Research Laboratory in Yoichi.

Table 6. Plankton data (30 cm × 150 cm, XX 13, fine mesh net) in

Station	Position	Ship's date	Ship's time	Wire run out (m)	Wire angle (°)	Revolutions of flow-meter
Os 1	42°00′N 146°00′E	June 9	16:30	100	10	1096
Os 2	42°55′N 147°47′E	10	05:30	〃	26	722
Os 3	44°04′N 149°40′E	10	20:20	〃	29	1015
Os 4	45°03′N 151°32′E	11	08:50	〃	23	550
Os 5	46°00′N 153°15′E	11	20:20	〃	20	665
Os 6	46°35′N 154°50′E	12	08:25	〃	26	515
Os 7	48°00′N 156°59′E	12	23:30	〃	25	645
Os 8	48°00′N 159°13′E	13	10:20	〃	13	356
Os 9	48°00′N 161°29′E	13	23:00	〃	17	545
Os 10	47°42′N 163°31′E	14	16:30	〃	23	485
Os 11	48°00′N 165°46′E	15	19:00	〃	35	1130
Os 12	48°00′N 168°00′E	16	06:50	〃	24	885
Os 13	48°00′N 170°00′E	16	17:00	〃	30	1090
Os 14	49°40′N 170°00′E	17	06:30	〃	34	1130
Os 15	51°43′N 171°20′E	18	10:00	〃	26	1435
Os 16	53°14′N 171°20′E	18	00:40	〃	19	575
Os 17	55°00′N 171°20′E	19	13:25	〃	26	670
Os 18	53°16′N 174°05′E	21	19:30	〃	20	590
Os 19	53°16′N 176°50′E	22	08:20	〃	12	680
Os 20	53°16′N 179°04′E	22	18:45	〃	21	610
Os 21	53°16′N 178°32′W	24	18:10	〃	20	345
Os 22	52°01′N 179°30′W	24	14:50	〃	26	230
Os 23	51°00′N 180°00′	24	22:55	〃	21	835

the "Oshoro Maru" cruise 44 to the Bering Sea in June–July 1959

Volume of water filtered (m^3)	Displacement volume per $1000m^3$(cc)	Wet weight per $1000m^3$ (gr)	Dominant species
6.8	293	263	Copepods, *Ceratium longipes*
4.5	200	111	*Ch. concavicornis, Rh. alata, Rh. hebetata* f.*s.*
6.3	237	126	*Fragilaria* sp., *Ch. concavicornis, Ch. convolutus*
3.4	1021	408	*Fragilaria* sp.
4.1	367	196	*Corethron hystrix, Ch. concavicornis, Fragilaria* sp.
3.2	311	187	*Ch. socialis, Fragilaria* sp., *Ch. atlanticus*
4.0	398	50	*Ch. concavicornis, Ch. atlanticus, Thal'rix longissima*
2.2	811	270	*Ch. concavicornis*, Copepods, *Fragilaria* sp., *Rh. hebetata* f.*s.*
3.4	235	59	*Ch. concavicornis*
3.0	331	66	*Ch. concavicornis, Ch. atlanticus*, Copepods
7.0	114	14	*Ch. concavicornis*
5.5	91	18	*Ch. concavicornis, Rh. hebetata* f.*s.*
6.8	1171	15	*Ch. concavicornis*, Copepods, *Rh. hebetata* f.*s.*
7.0	383	184	*Thal'rix longissima, Ch. concavicornis, Denticula* sp.
8.9	78	11	*Nitzschia seriata, Ch. radicans, Ch. concavicornis*
3.6	279	84	*Ch. laciniosus, Ch. radicans, Nitzschia seriata, Ch. debilis*
4.2	598	431	*Ch. concavicornis, Nitzschia seriata, Ch. convolutus*
3.7	815	381	*Ch. atlanticus, Ch. radicans, Thal'rix longissima, Denticula* sp.
4.2	448	295	Copepods, *Thal'rix longissima*
3.8	394	289	*Ch. atlanticus, Thal'rix longissima*, Copepods
2.1	465	139	Copepods, *Denticula* sp., *Thal'rix longissima, Nitzschia seriata*
1.4	1046	697	Copepods, *Rh. hebetata* f.*s.*, *Coscinodiscus* sp.
5.2	672	288	Copepods

Table 6.

Station	Position	Ship's date	Ship's time	Wire run out (m)	Wire angle (°)	Revolutions of flow-meter
Os 24	50°00′N 180°00′	June 25	07:10	100	15	815
Os 25	49°00′N 180°00′	25	15:50	〃	16	800
Os 26	48°32′N 180°00′	25	21:05	〃	22	635
Os 27	48°32′N 177°20′W	26	17:50	〃	19	875
Os 28	48°26′N 175°06′W	27	07:00	〃	3	823
Os 29	48°23′N 172°30′W	27	20:25	〃	0	643
Os 30	49°29′N 171°59′W	28	12:30	〃	15	835
Os 31	50°25′N 171°59′W	28	21:10	〃	10	640
Os 32	51°30′N 172°00′W	29	12:45	〃	10	640
Os 33	52°50′N 172°00′W	29	23:35	〃	11	790
Os 34	54°10′N 172°00′W	30	09:35	〃	12	610
Os 35	54°44′N 170°14′W	30	20:55	〃	30	800
Os 36	55°11′N 168°30′W	July 1	13:20	〃	23	255
Os 37	55°40′N 167°06′W	1	21:00	〃	25	500
Os 40	57°01′N 174°30′W	8	16:40	〃	6	565
Os 41	57°00′N 176°22′W	9	02:15	〃	17	665
Os 42	57°00′N 179°10′W	9	14:10	〃	12	630
Os 43	57°38′N 177°59′E	11	11:45	〃	20	525
Os 44	57°32′N 176°30′E	11	20:30	〃	17	525
Os 45	56°56′N 174°30′E	12	20:45	〃	35	380
Os 46	58°19′N 174°50′E	13	11:40	〃	30	690
Os 47	58°54′N 172°07′E	14	03:45	〃	22	712
Os 48	59°19′N 170°20′E	14	11:30	〃	22	463

(Continued)

Volume of water filtered (m^3)	Displacement volume per 1000m^3(cc)	Wet weight per 1000m^3 (gr)	Dominant species
5.1	295	138	*Denticula* sp., *Rh. hebetata* f.*s.*, Copepods
5.0	100	20	Copepods, *Thal'rix longissima*, *Ch, concavicornis*
4.0	505	253	*Thal'rix longissima*, *Ch. concavicornis*, *Denticula* sp.
5.5	220	92	*Thal'rix longissima*, *Denticula* sp., *Ch. concavicornis*
5.1	195	58	*Ch. concavicornis*, *Nitzschia seriata*, Copepods, *Thal'rix longissima*
4.0	200	25	*Nitzschia seriata*, *Thal'rix longissima*, *Denticula* sp.
5.2	173	38	Copepods, *Thal'rix longissima*, *Denticula* sp., *Nitzschia seriata*
4.0	376	125	*Nitzschia seriata*, *Ch. concavicornis*, *Denticula* sp., *Ch. convolutus*
4.0	201	25	Copepods, *Ch. concavicornis*, *Denticula* sp.
4.9	305	142	Copepods, *Coscinodiscus* spp., *Ch. atlanticus*, *Peridinium* sp.
3.8	474	263	*Ch. atlanticus*, Copepods
5.0	361	181	Copepods
1.6	944	566	Copepods, *Peridinium* sp., *Ceratium longipes*
3.1	610	32	*Peridinium* sp., Copepods
3.5	341	170	Copepods, *Ceratium longipes*
4.1	193	24	Copepods, *Ceratium longipes*
3.9	764	357	*Thal'rix longissima*, *Rh. hebetata* f.*h.*, Copepods
3.9	591	437	*Thal'rix longissima*, *Ch. atlanticus*, *Coscinodiscus* sp.
3.3	245	31	*Thal'rix longissima*, *Denticula* sp.
2.4	2408	2027	*Thal'rix longissima*, Copepods, *Nitzschia seriata*
4.3	535	372	*Thal'rix longissima*, *Denticula* sp., *Ch. atlanticus*
4.4	518	361	*Ceratium longipes*, *Ceratium* sp., Copepods, *Thal'rix longissima*
2.9	2011	1456	Copepods, *Peridinium* sp., *Ceratium longipes*

Table 6.

Station	Position	Ship's date	Ship's time	Wire run out (m)	Wire angle (°)	Revolutions of flow-meter
Os 49	58°18′N 169°58′E	July 14	21:15	100	16.5	405
Os 50	57°19′N 169°58′E	15	11:45	〃	2	373
Os 51	56°22′N 169°58′E	15	21:15	〃	3	430
Os 52	56°20′N 168°03′E	16	11:40	〃	15	468
Os 53	56°20′N 166°18′E	16	20:00	〃	24	632
Os 54	56°29′N 164°21′E	17	04:10	〃	18	412
Os 55	55°29′N 164°20′E	17	14:10	〃	17	650
Os 56	54°55′N 164°20′E	17	20:35	〃	8	560
Os 57	53°54′N 164°16′E	18	12:30	〃	11	542
Os 58	53°02′N 164-16′E	18	20:25	〃	5	482
Os 59	51°59′N 164°04′E	19	12:00	〃	21	488
Os 60	51°02′N 164°18′E	19	20:20	〃	16	455
Os 61	51°11′N 162°48′E	20	12:05	〃	6	510
Os 62	51°11′N 161°23′E	20	20:40	〃	31	133
Os 63	51°15′N 159°53′E	21	12:15	〃	20	480
Os 64	50°35′N 159°00′E	21	20:15	〃	13	330
Os 65	49°35′N 159°00′E	22	12:25	〃	23	565
Os 66	48°35′N 159°00′E	22	20:20	〃	0	323
Os 67	47°43′N 157°10′E	23	08:30	〃	22	500

(Continued)

Volume of water filtered (m^3)	Displacement volume per $1000m^3$(cc)	Wet weight per $1000m^3$ (gr)	Dominant species
2.5	1268	872	Copepods, *Ceratium longipes*, *Ceratium* sp.
2.3	861	430	Copepods, *Ceratium longipes*, *Ceratium* sp.
2.7	672	224	*Thal'rix longissima*
2.9	686	412	*Thal'rix longissima*
3.9	889	533	*Thal'rix longissima*
2.5	701	351	*Ch. constrictus*, *Thal'rix longissima*
4.0	198	25	Copepods, *Rh. hedetata* f.*s.*, *Corethron hystrix*
3.4	573	201	*Ch. concavicornis*, *Ch. convolutus*, *Rh. hebetata* f.*s.*, *Corethron hystrix*
3.4	651	444	*Ch. debilis*, *Ch. diadema*
3.0	333	100	*Ch. concavicornis*, *Nitzschia seriata*, *Denticula* sp.
3.0	329	230	*Nitzschia seriata*, *Thal'rix longissima*, *Ch. concavicornis*
2.8	353	106	*Ch. convolutus*, *Ch. concavicornis*, *Thal'rix longissima*
3.2	378	252	*Ch. concavicornis*, *Denticula* sp., *Thal'rix longissima*
8.3	3621	1086	*Rh. hebetata* f.*s.*, *Ch. radicans*, *Thal'rix longissima*
3.0	1003	502	*Ch. radicans*, *Rh. hebetata* f.*s.*
2.1	730	486	*Thal'rix longissima*, *Ch. atlanticus*, *Rh. hebetata* f.*s.*, *Ch. convolutus*
3.5	568	312	*Thal'rix longissima*, *Rh. hebetata* f.*s.*
2.0	1640	447	*Rh. hebetata* f.*s.*, *Thal'rix longissima*
3.1	321	289	*Thal'rix longissima*, *Rh. hebetata* f.*s.*

Revolutions of flow-meter without net for 150 m vertical haul.

Flow-meter TSK 189 used at Os 1 - Os 28 : 1700 revol.

Flow-meter TSK 191 used at Os 29 - Os 67 : 1665 revol.

10. Data on Plankton Collected with a North Pacific Standard Net
(北太平洋標準ネット採集プランクトン記録)

Vertical hauls with a North Pacific standard net, 45 cm × 180 cm, conical, made of bolting silk GG 54, having approximately 0.33 mm mesh aperture, were carried out from about 150 meter depth to the surface once at each hydrographic station.

A flow-meter was mounted at the center of the mouth ring of the net to register the quantity of water filtered.

Unusual large organisms such as jellyfish were removed from the samples before they were submitted to volume and weight measurements, and the number of these organisms was counted separately.

Displacement volume of the samples was measured by means of aspiration filtering apparatus, and wet weight of the samples was obtained by weighing the samples retained on the filter paper of this apparatus.

Dominant forms were recorded with their number of occurrences per 1000 m^3 of water.

The measurment was made at the Plankton Laboratory of the University.

Table 7. Plankton data (45 cm × 180 cm, GG 54, NORPAC standard net)

Station	Position		Ship's date	Ship's time	Wire run out (m)	Wire angle	Estimated depth of haul (m)	Revolutions of flow-meter	Volume of water filtered (m^3)	Displacement of sample per 1000m^3 (cc)	Wet weight of sample per 1000m^3 (gr)
Os 1	42°00′N	146°00′E	June 9	1640	150	13	146	917	20.7	773	614
Os 2	42°55′N	146°47′E	10	0535	150	37	120	1160	26.2	535	543
Os 3	44°04′N	149°40′E	10	2025	150	26	135	960	21.7	461	233
Os 4	45°03′N	151°32′E	11	0855	150	30	130	917	20.7	773	625
Os 5	46°00′N	153°15′E	11	2025	150	25	136	1345	30.4	164	158
Os 6	46°35′N	154°50′E	12	0835	150	39	117	852	19.3	522	522
Os 7	48°00′N	156°59′E	12	2335	150	31	129	1320	29.9	305	244
Os 8	48°00′N	159°13′E	13	1040	150	36	121	1096	24.8	403	350
Os 9	48°00′N	161°29′E	13	2305	150	18	143	1370	31.0	128	128
Os 10	47°42′N	163°31′E	14	1635	150	30	130	940	21.3	187	150
Os 11	48°00′N	165°46′E	15	1915	150	23	138	1335	30.2	99	86
Os 12	48°00′N	168°00′E	16	0700	150	31	129	595	13.5	296	126
Os 13	48°00′N	170°00′E	16	1710	150	30	130	1075	24.3	41	66
Os 14	49°40′N	170°00′E	17	0645	150	44	108	1220	27.6	797	769
Os 15	51°43′N	171°20′E	18	1010	150	36	121	1410	31.9	125	85
Os 16	53°14′N	171°20′E	18	0050	150	15	145	930	21.0	810	445
Os 17	55°00′N	171°20′E	19	1330	150	36	121	970	21.9	411	185
Os 18	53°16′N	174°05′E	21	1950	150	21	140	900	21.6	602	623
Os 19	53°16′N	176°50′E	22	0825	150	13	146	860	20.6	485	525
Os 20	53°16′N	179°04′E	22	1850	150	23	138	960	23.0	696	618
Os 21	53°16′N	178°32′W	24	1815	150	21	140	955	22.9	306	218
Os 22	52°01′N	179°30′W	24	1455	150	29	131	985	23.6	508	326
Os 23	51°00′N	180°00′	24	2300	150	19	142	737	17.7	508	478
Os 24	50°00′N	180°00′	25	0715	150	23	138	1100	26.4	228	180
Os 25	49°00′N	180°00′	25	1555	150	19	142	970	23.2	129	80

in the "Oshoro Maru" cruire 44 to the Bering Sea in June–July 1959

Dominant organisms (individual number in 1000m³)								Unusual large organisms removed before volume and weight measurements (number in a haul)	
Calanus cristatus	*Calanus plumchrus*	*Calanus finmarchicus*	*Metridia lucens*	*Eucalanus bungii bungii*	Euphausiid	Amphipod	*Sagitta*	*Aglantha*	Others
8500	176230	0	10820	261250	0	190	7730	44	
3050	21220	0	26850	31150	76	572	5500	22	
1850	11800	0	12900	22840	140	90	2210	9	
3870	62600	0	2320	22450	580	190	10820	44	1 squid
1100	6850	0	4740	6580	360	200	6320	26	1 shrimp, 1 fish larva
4970	55550	0	0	31490	160	210	5810	50	
9370	5080	0	16480	270	270	0	530	77	1 squid
120	4840	0	1250	33550	160	0	2540	96	
260	2580	0	13290	1290	130	200	650	23	
47	5260	0	0	35300	140	90	1500	5	
33	1850	0	1060	8740	100	0	760	11	
370	10750	0	890	14050	150	560	2120	10	
83	4460	0	0	7320	83	83	290	13	
26090	14720	0	0	31880	0	180	5810	6	
250	2260	0	380	6780	130	310	1250	21	
2290	11840	0	57900	312100	96	1520	11420	8	2 fish larvae
46	5120	0	37240	730	92	180	25550	17	1 fish larva
140	77180	4444	13620	161500	46	46	5930	14	
5440	71500	0	5440	100900	0	0	5990	17	
700	54220	0	2780	996170	0	170	4650	11	
1050	19220	0	19260	248250	180	260	2490	19	
680	56600	0	2642	242720	8140	170	210	4	
3630	159100	0	90400	65090	120	1250	900	7	
1820	15150	0	6670	108860	230	4520	380	3	
0	8980	170	1370	10190	170	43	340	11	

Table 7.

Station	Position		Ship's date	Ship's time	Wire run out (m)	Wire angle	Estimated depth of haul (m)	Revolutions of flow-meter	Volume of water filtered (m^3)	Displacement of sample per 1000m^3 (cc)	Wet weight of sample per 1000m^3 (gr)
Os 26	48°32′N	180°00′	June 25	2110	150	25	136	972	23.3	86	102
Os 27	48°32′N	177°20′W	26	1755	150	23	138	965	23.1	87	50
Os 28	48°26′N	175°06′W	27	0705	150	7	149	968	23.2	43	30
Os 29	48°32′N	172°30′W	27	2030	150	0	150	800	19.2	130	128
Os 30	49°29′N	171°59′W	28	1235	150	22	139	940	22.5	445	411
Os 31	50°25′N	171°59′W	28	2120	150	17	143		24.0	(137)	(199)
Os 32	51°30′N	172°00′W	29	1250	150	21	140	950	22.8	22	29
Os 33	52°50′N	172°00′W	29	2340	150	20	141	927	22.2	99	144
Os 34	54°10′N	172°00′W	30	0940	150	19	142		24.0	(800)	(680)
Os 35	54°44′N	170°14′W	30	2100	150	31	129		24.0	(1781)	(1651)
Os 36	55°11′N	168°30′W	July 1	1330	150	30	130	908	21.8	642	344
Os 37	55°40′N	167°06′W	1	2105	150	31	129	970	23.2	604	362
Os 38	56°12′N	166°30′W	3								
Os 39	55°27′N	164°38′W	6								
Os 40	57°01′N	174°30′W	8	1650	150	12	147	850	20.4	368	174
Os 41	57°00′N	176°22′W	9	0220	150	20	141	970	23.2	302	19
Os 42	57°00′N	179°10′W	9	1420	150	17	143	977	23.4	172	270
Os 43	57°38′N	177°59′E	11	1150	150	30	130	1100	26.4	1023	461
Os 44	57°32′N	176°30′E	11	2035	150	27	134	1010	24.2	413	404
Os 45	56°56′N	174°30′E	12	2050	150	45	106	1400	33.6	1459	820
Os 46	58°19′N	174°50′E	13	1445	150	35	123	1125	27.0	667	527
Os 47	58°54′N	172°07′E	14	0350	150	25	136	1175	28.1	712	663
Os 48	59°19′N	170°20′E	14	1135	150	38	118	1125	27.0	815	693
Os 49	58°18′N	169°58′E	14	2125	150	16	144	895	21.4	841	771
Os 50	57°19′N	169°58′E	15	1155	150	10	148	735	17.6	477	852

(Continued)

Dominant organisms (individual number in 1000m³)								Unusual large organisms removed before volume and weight measurements (number in a haul)	
Calanus cristatus	*Calanus plumchrus*	*Calanus finmarchicus*	*Metridia lucens*	*Eucalanus bungii bungii*	Euphausiid	Amphipod	*Sagitta*	*Aglantha*	Others
770	4460	0	680	3770	310	86	640	22	
0	2250	170	340	5890	0	40	220	7	1 squid, 1 fish larva
0	990	0	80	3100	0	86	86	19	
1460	1260	0	4600	4200	260	890	420	18	
16730	3560	0	0	6050	0	0	0	9	
410	54840	0	161640	3210	4520	36160	150	19	
0	6090	260	5830	3250	270	1050	220	5	1 jellyfish
450	7570	1800	20900	28470	6890	720	490	5	
800	100800	0	96000	198400	4400	2000	1100	1	
3150	48220	0	359450	1797260	52600	4520	10960	9	1 clione, 2 jellyfish
290	48440	730	24220	146780	2980	320	1740	19	
300	2760	39310	176510	2760	23920	170	260	14	
590	5490	3850	109800	313720	2450	390	4700	4	
1510	34900	0	76550	278620	2760	4050	4220	8	1 jellyfish
590	18200	0	14190	661880	2250	1970	1700		
1810	35150	0	92120	736970	1210	1970	1670		
900	26420	0	95200	408100	660	22410	5950	3	
3390	106660	0	72380	1264290	230	12380	2850	1	1 squid
210	18220	0	144590	701620	44	4160	6880	31	2 squids
850	21250	0	17090	279710	4710	1420	8180	4	
150	27300	0	80590	815410	2550	1630	5190		
700	97190	0	23920	1742800	10460	4770	17570	9	
970	127270	0	78640	1294550	3180	3180	15000	2	

Table 7.

Station	Position	Ship's date	Ship's time	Wire run out (m)	Wire angle	Estimated depth of haul (m)	Revolutions of flow-meter	Volume of water filtered (m^3)	Displacement of sample per 1000m^3 (cc)	Wet weight of sample per 1000m^3 (gr)
Os 51	56°22′N 169°58′E	July 15	2135	150	2	150	830	19.9	854	407
Os 52	56°20′N 168°03′E	16	1150	150	25	136	853	20.4	245	328
Os 53	56°20′N 166°18′E	16	2010	150	24	137	843	20.2	866	634
Os 54	56°29′N 164°21′E	17	0415	150	28	132	967	23.2	603	474
Os 55	55°29′N 164°20′E	17	1415	150	31	129	917	22.0	45	41
Os 56	54°55′N 164°20′E	17	2045	150	15	145	848	20.3	296	438
Os 57	53°54′N 164°16′E	18	1235	150	2	150	725	17.4	862	201
Os 58	53°02′N 164°16′E	18	2035	150	12	147	754	18.1	110	44
Os 59	51°59′N 164°04′E	19	1205	150	24	136	1047	25.1	80	44
Os 60	51°02′N 164°18′E	19	2030	150	19	142	965	23.1	87	82
Os 61	51°11′N 162°48′E	20	1215	150	11	147	818	19.6	357	122
Os 62	51°11′N 161°23′E	20	2055	150	34	124	1000	24.0	417	92
Os 63	51°15′N 159°53′E	21	1230	150	32	127		24.0	(2143)	(2107)
Os 64	50°35′N 159°00′E	21	2025	150	13	146	733	17.6	682	148
Os 65	49°35′N 159°00′E	22	1230	150	33	126	870	20.8	577	483
Os 66	48°35′N 159°00′E	22	2030	150	1.5	150		24.0	(104)	(260)
Os 67	47°43′N 157°10′E	23	0835	150	25	136	788	18.9	476	376

Revolutions of flow-meter without net for 150 m vertical haul.

Flow-meter TSK 234 used at st. 1– st. 17: 1054 revol.

Flow-meter TSK 179 used at st. 18– st. 67: 995 revol.

In the collections at st. 31, 34, 35, 63 and 66 flow-meters did not work well. Data of volume and counted on the assumption that the water column passed by the net ring was entirely filtered by

(Continued)

Dominant organisms (individual number in 1000m³)								Unusual large organisms removed before volume and weight measurements (number in a haul)	
Calanus cristatus	*Calanus plumchrus*	*Calanus finmarchicus*	*Metridia lucens*	*Eucalanus bungii bungii*	Euphausiid	Amphipod	*Sagitta*	*Aglantha*	Others
2210	49850	0	25730	125430	1600	210	8840	7	
540	30290	0	92550	126170	0	4420	5190	8	
3760	63370	1630	155250	277230	1780	10100	4900	10	
11030	31720	0	101380	71030	340	1280	3450	15	
0	4360	0	6900	7640	45	270	360	3	
590	790	0	23650	3150	350	980	740	9	
920	3680	0	36780	750340	520	6260	3120	36	1 shrimp
55	3980	0	12370	18340	55	710	170	10	
0	3820	0	1590	23900	0	510	120	41	1 jellyfish
340	5030	0	4860	12130	170	820	680	7	1 squid
2860	5320	0	820	19190	0	510	610	32	1 jellyfish
120	1370	690	2000	66000	2743	690	3000	3	
11420	97250	0	2860	624000	710	10360	18550	27	
9080	7290	0	19100	106500	29080	6360	3630	3	
3070	8080	0	7720	39600	0	770	3070	22	
2400	11250	0	31690	12090	1350	4890	830	31	1 jellyfish
640	21980	0	19440	23700	1690	1690	1110	9	

weight per 1000 m³ of these samples were
the net.

11. Data on Plankton Collected with a Fish Larva Net
(稚魚ネット採集プランクトン記録)

A fish-larva net, 130 cm × 450 cm, conical, made of stramin in the anterior 300 cm, and of bolting silk GG 54 in the posterior 150 cm, was towed through apporoximately the surface water at a speed of about 2 knots for ten minutes. The net was not equipped with flow-meter, so that the data are not available for exact quantitative studies.

Samplings were carried out at hydrographic stations as well as at about one hour after sunset daily while underway.

Fish larvae contained in the samples were picked up before the measurement of weight. The data on fish larvae are given on pp. 80–86.

Wet weight of the samples was obtained by weighing the materials left on the filtering disc of the aspiration filtering apparatus.

The measurement was made at the Plankton Laboratory of the University.

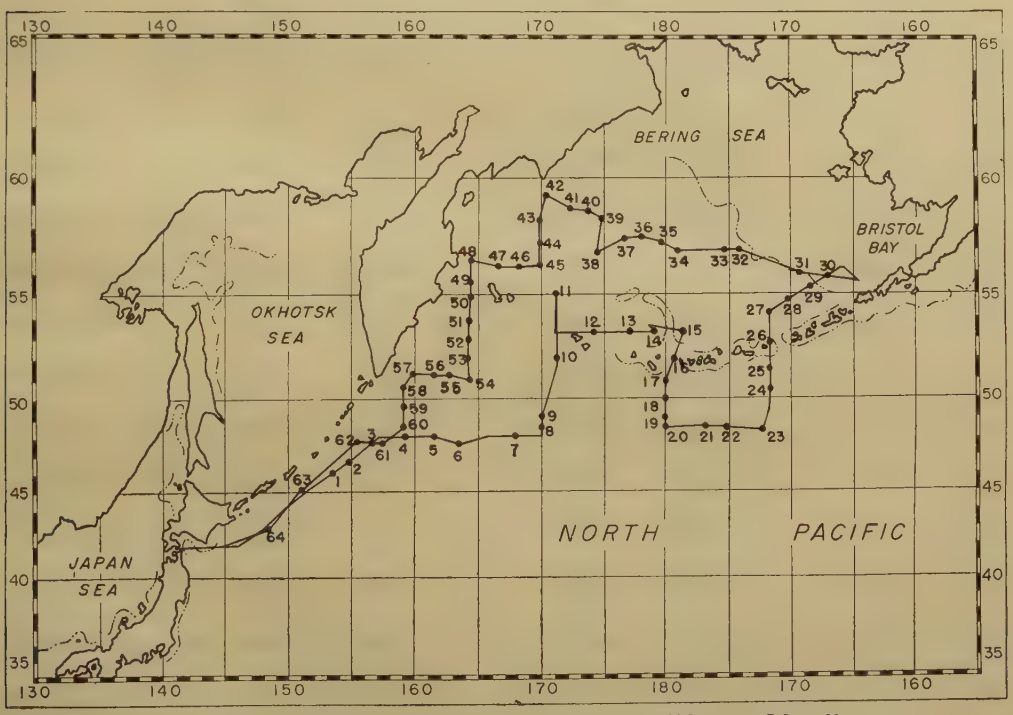

Fig. 3. Stations of fish-larva net tow in the "Oshoro Maru" cruise 44 to the Bering Sea in June–July 1959

Table 8. Plankton Data (130 cm × 450 cm, fish larva net) in the

No. of collection	Corresponding hydrographic station	Position		Ship's date		Ship's time	Wet weight of samples in a tow (gr)
1	Os 5	46°00′N	153°15′E	June	11	2120	106.0
2	Os 6	46°35′N	154°50′E		12	1009	21.2
3		47°45′N	156°36′E		12	2028	45.0
4	Os 8	48°00′N	159°13′E		13	1151	5.8
5	Os 9	48°00′N	161°29′E		13	1902	7.2
6		47°42′N	163°31′E		14	1932	34.6
7	Os 12	48°00′N	168°00′E		16	0756	8.2
8		48°26′N	170°00′E		16	2031	9.8
9	Os 14	49°00′N	170°00′E		17	0730	156.0
10		52°56′N	171°20′E		18	2106	112.0
11	Os 17	55°00′N	171°20′E		19	1403	10.4
12	Os 18	53°16′N	174°05′E		21	1951	160.8
13	Os 19	53°16′N	176°50′E		22	0858	6.6
14	Os 20	53°16′N	179°04′E		22	1956	176.8
15	Os 21	53°16′N	178°32′W		24	1844	41.6
16	Os 22	52°01′N	179°30′W		24	1529	6.2
17	Os 23	51°00′N	180°00′		24	2340	132.0
18	Os 24	50°00′N	180°00′		25	0757	47.4
19	Os 25	49°00′N	180°00′		25	1616	4.8
20	Os 26	48°32′N	180°00′		25	2122	60.2
21		48°32′N	176°48′W		26	2056	26.8
22	Os 28	48°26′N	175°06′W		27	0744	1.1
23	Os 29	48°23′N	172°30′W		27	2056	26.2
24	Os 31	50°25′N	171°59′W		28	2135	54.8

"Oshoro Maru" cruise 44 to the Bering Sea in June–July 1959

Dominant forms in samples	Number of jellyfish larger than 2 cm which were removed before weighing
Aglantha digitale, Calanus plumchrus, Eucalanus bungii	3
Calanus plumchrus, Sagitta elegans	
Themisto sp., *Calanus plumchrus, Sagitta elegans*	
Diatoms	1
Diatoms, *Themisto* sp.	
Calanus plumchrus, Themisto sp., *Sagitta elegans*	1
Diatoms	
Themisto sp. (Small-sized), *Calanus plumchrus*	
Themisto sp.	
Themisto sp.	
Diatoms, *Themisto* sp.	
Eucalanus bungii, Calanus plumchrus, Themisto sp.	
Eucalanus bungii	
Themisto sp.	
Themisto sp., *Calanus plumchrus*	
Pseudocalanus minutus	
Calanus plumchrus, Metridia sp.	1
Pseudocalanus minutus, Calanus plumchrus	
Pseudocalanus minutus, Calanus plumchrus	
Aglantha digitale, Calanus plumchrus	
Aglantha digitale, Calanus plumchrus, Clione limacina	
Pseudocalanus minutus, Aglantha digitale, Clione limacina	
Metridia sp., *Calanus plumchrus, Aglantha digitale*	

Table 8.

No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Wet weight of samples in a tow (gr)
25	Os 32	51°30′N 172°00′W	June 29	1303	4.5
26	Os 33	52°50′N 172°00′W	29	2054	85.8
27	Os 34	54°10′N 172°00′W	30	1030	5.1
28	Os 35	54°44′N 170°14′W	30	2115	208.8
29	Os 36	55°11′N 168°30′W	July 1	1342	23.4
30	Os 37	55°40′N 167°06′W	1	2125	91.2
31		55°56′N 169°24′W	7	2108	81.6
32	Os 40	57°01′N 174°30′W	8	1710	3.0
33		57°02′N 175°29′W	8	2131	301.2
34	Os 42	57°00′N 179°10′W	9	1417	17.0
35		57°24′N 179°28′E	9	2149	146.0
36	Os 43	57°38′N 177°59′E	11	1217	9.4
37	Os 44	57°32′N 176°30′E	11	2059	160.0
38	Os 45	56°56′N 174°30′E	12	2128	216.8
39	Os 46	58°19′N 174°50′E	13	1529	70.4
40		58°42′N 173°34′E	13	2120	196.0
41	Os 47	58°54′N 172°07′E	14	0408	35.2
42	Os 48	59°19′N 170°20′E	14	1207	18.6
43	Os 49	58°18′N 169°58′E	14	2132	45.4
44	Os 50	57°11′N 169°58′E	15	1250	1.7
45	Os 51	56°22′N 169°58′E	15	2205	121.6
46	Os 52	56°20′N 168°03′E	16	1208	184.8
47	Os 53	56°20′N 166°18′E	16	2052	54.0
48	Os 54	56°29′N 164°21′E	17	0438	15.8

(Continued)

Dominant forms in samples	Number of jellyfish larger than 2 cm which were removed before weighing
Clione limacina, *Pseudocalanus minutus*	
Squid larva, *Themisto* sp.	4
Diatoms	
Small-sized jellyfish, *Calanus plumchrus*	2
Pseudocalanus minutus, *Clione limacina*, *Themisto* sp.	
Calanus plumchrus	
Aglantha digitale, *Pseudocalanus minutus*, Megalopa larva of crab	6
Pseudocalanus minutus, Zoea larva of crab	
Small-sized jellyfish, squid larva	7
Diatoms, Zoea and megalopa larvae of crab	1
Squid larva, *Themisto* sp.	
Diatoms, Zoea larva of crab, Squid larva	
Squid larva, *Themisto* sp., Zoea larva of crab	
Themisto sp., Squid larva	
Diatoms, *Pseudocalanus minutus*, *Calanus plumchrus*	
Themisto sp., Squid larva	
Pseudocalanus minutus, Squid larva	
Zoea larva of crab	
Oikopleura sp., Zoea larva of crab	
Themisto sp.	
Diatoms, *Oikopleura* sp., *Calanus plumchrus*	1
Diatoms	
Diatoms, *Themisto* sp., Squid larva	
Diatoms	

Table 8.

No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Wet weight of samples in a tow (gr)
49	Os 55	55°29′N 164°20′E	July 17	1433	11.8
50	Os 56	54°55′N 164°20′E	17	2143	84.0
51	Os 57	53°54′N 164°16′E	18	1315	4.9
52	Os 58	53°02′N 164°16′E	18	2103	22.6
53	Os 59	51°59′N 164°04′E	19	1301	5.2
54	Os 60	51°02′N 164°18′E	19	2116	135.6
55	Os 61	51°11′N 162°48′E	20	1236	17.0
56	Os 62	51°11′N 161°23′E	20	2114	288.0
57	Os 63	51°15′N 159°53′E	21	1251	42.0
58	Os 64	50°35′N 159°00′E	21	2032	84.6
59	Os 65	49°35′N 159°00′E	22	1259	27.6
60	Os 66	48°35′N 159°00′E	22	2111	48.0
61	Os 67	47°43′N 157°10′E	23	0902	28.8
62		47°47′N 155°12′E	23	2024	52.2
63		45°13′N 151°03′E	24	2033	140.8
64		43°17′N 148°22′E	25	1933	23.8

(Continued)

Dominant forms in samples	Number of jellyfish larger than 2 cm which were removed before weighing
Diatoms	
Diatoms	
Pseudocalanus minutus, Zoea larva of crab	
Pseudocalanus minutus, *Themisto* sp., *Aglantha digitale*	
Diatoms	
Aglantha digitale, *Metridia* sp., *Eucalanus bungii*	
Diatoms	
Zoea larva of crab	
Zoea larva of crab	
Zoea larva of crab, Squid larva, Megalopa larva of crab	
Diatoms, Zoea larva of crab	
Diatoms, *Metridia lucens*	8
Diatoms	
Diatoms, Squid larva, *Sagitta elegans*	
Diatoms, *Calanus plumchrus*	3
Themisto sp. (Small-sized), *Calanus plumchrus*, *Oikopleura* sp.	

12. Data on Fish Larvae Collected with a Fish Larva net
(稚魚ネット採集稚魚記録)

Specimens of fish larvae were picked up from the mixed plankton samples which were collected by surface tow with a 130 cm fish larva net (ref. to pp. 73-79).

Identification of fish larvae was made by S. I. Sato and K. Kobayashi at the Laboratory of Ichthyology of the University.

Table 9. Data on collection of fish larvae in the "Oshoro Maru" cruise 44 to the Bering Sea in June-July 1959

No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals	Range of total length (mm)
1	Os 5	46° 00′N 153° 15′E	June 11	2120	Lumpenidae *Pleurogrammus monopterygius*(P*ALLAS*)	1 2	23.0 23.5~40.0
2	Os 6	46° 35′N 154° 50′E	June 12	1009	*Pleurogrammus monopterygius*(P*ALLAS*) *Hexagrammos*	3 2	34.0~38.0 32.5~36.0
3		47° 45′N 156° 36′E	June 12	2028	Lumpenidae *Pleurogrammus monopterygius*(P*ALLAS*) *Hemilepidotus*	2 5 220	23.5 33.0~43.0 19.0~34.0
4	Os 8	48° 00′N 159° 13′E	June 13	1151	*Pleurogrammus monopterygius*(P*ALLAS*) *Hemilepidotus*	1 9	44.0 23.5~25.0
5	Os 9	48° 00′N 161° 29′E	June 13	1902	*Pleurogrammus monopterygius*(P*ALLAS*)	6	27.0~31.0
6		47° 42′N 163° 31′E	June 14	1932	*Hemilepidotus*	17	24.0~33.0
7	Os 12	48° 00′N 168° 00′E	June 16	0756	*Hexagrammos*	1	19.0
8		48° 26′N 170° 00′E	June 16	2031	*Pleurogrammus monopterygius*(P*ALLAS*) *Hexagrammos* *Hemilepidotus*	12 1 15	40.2~42.7 31.5 18.0~24.5
9	Os 14	49° 40′N 170° 00′E	June 17	0730	*Pleurogrammus monopterygius*(P*ALLAS*) *Hemilepidotus*	1 1	34.4
10		52° 56′N 171° 20′E	June 18	2106	*Ammodytes hexapterus* P*ALLAS* Lumpenidae Lumpenidae *Anoplopoma fimbria* (P*ALLAS*) *Hexagrammos* *Hemilepidotus*	45 1 21 1 3 45	27.5~45.0 40.0 12.0~13.0 14.5 16.0~17.5 16.0~37.0

Table 9. (Continued)

No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals	Range of total length (mm)
11	Os 17	55° 00′ N	June 19	1403	Lumpenidae	22	11.0~12.0
		171° 20′ E			*Hexagrammos*	2	15.0~17.5
					Hemilepidotus	6	16.5~30.5
12	Os 18	53° 16′ N	June 21	1951	*Bathymaster*	1	39.5
		174° 05′ E			*Ammodytes hexapterus* PALLAS	4	20.5~43.5
					Lumpenidae	3	33.0~38.5
					Lumpenidae	104	9.0~13·0
					Hexagrammos	1	21.0
					Hemilepidotus	14	19.0~29.0
					Myoxocephalus	1	19.5
					Liparidae	1	16.0
					Peuronectidae	1	26.5
					Unidentified	45	7.0~11.02
					Unidentified	2	1.51
13	Os 19	53° 16′ N	June 22	0858	Lumpenidae	7	
		176° 50′ E			*Hexagrammos*	1	19.5
					Unidentified	2	
14	Os 20	53° 16′ N	June 22	1956	*Ammodytes hexapterus* PALLAS	26	27.5~38.5
		179° 04′ E			Lumpenidae	7	27.5~39.5
					Lumpenidae	21	12.0~13.5
					Hexagrammos	1	13.0
					Hemilepidotus	8	19.0~26.0
					Unidentified	74	7.0~11.5
15	Os 21	53° 16′ N	June 24	1844	*Ammodytes hexapterus* PALLAS	6	
		178° 32′ W			Lumpenidae	2	
					Lumpenidae	32	
					Anoplopoma fimbria (PALLAS)	2	14.5
					Hexagrammos	3	15.5~19.0
					Unidentified	33	7.5~11.0
16	Os 22	52° 01′ N	June 24	1529	*Ammodytes hexapterus* PALLAS	3	
		179° 30′ W			Lumpenidae	3	
					Hexagrammos	8	15.0~18.0
17	Os 23	51° 00′ N	June 24	2340	Lumpenidae	111	7.5~15.0
		180° 00′			*Hexagrammos*	5	13.0~28.5
					Hexagrammos	2	19.0~25.0
					Unidentified	3	16.0~20.0

Table 9. (Continued)

No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals	Range of total length (mm)
18	Os 24	50° 00′N 180° 00′	June 25	0757	Lumpenidae	104	7.0~12.0
					Hexagrammos	6	13.0~17.5
					Hexagrammos	3	20.5~25.5
19	Os 25	49° 00′N 180° 00′	June 25	1616	Lumpenidae	1	
20	Os 26	48° 32′N 180° 00′	June 25	2122	*Tarletonbeania crenularis* (JORDAN & GILBERT)	1	32.0
					Pleurogrammus monopterygius(PALLAS)	1	53.5
					Hemilepidotus	1	
21		48° 32′N 176° 48′W	June 26	2056	*Pleurogrammus monopterygius*(PALLAS)	1	39.2
22	Os 28	48° 26′N 175° 06′W	June 27	0744	*Hexagrammos*	1	26.5
23	Os 29	48° 23′N 172° 30′W	June 27	2056	*Tarletonbeania crenularis* (JORDAN & GILBERT)	3	31.0~33.0
					Hexagrammos	1	22.0
24	Os 31	50° 25′N 171° 59′W	June 28	2135	Lumpenidae	2	10.5~14.5
					Hexagrammos	1	22.0
25	Os 32	51° 30′N 172° 00′W	June 29	1303	Lumpenidae	6	12.5~14.0
26	Os 33	52° 50′N 172° 00′W	June 29	2054	*Ammodytes hexapterus* PALLAS	101	24.0~49.0
					Lumpenidae	1	42.0
					Lumpenidae	268	7.0~11.0
					Hexagrammos	3	15.5~29.5
					Hemilepidotus	8	17.5~34.0
					Aptocyclus ventricosus (PALLAS)	1	10.5
					Unidentified	38	6.0~10.0
					Unidentified	4	12.5~17.0
					Unidentified	1	24.5
27	Os 34	54° 10′N 172° 00′W	June 30	1030	Lumpenidae	24	8.5~10.5
					Hexagrammos	2	19.0
					Unidentified	4	6.5~ 8.0

Table 9. (Continued)

No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals	Range of total length (mm)
28	Os 35	54° 44′N 170° 14′W	June 30	2115	*Ammodytes hexapterus* PALLAS	60	22.5~45.0
					Lumpenidae	7	38.5~44.0
					Lumpenidae	549	9.0~14.5
					Hexagrammos	7	17.5~27.5
					Hexagrammos	12	15.0~21.5
					Hemilepidotus	70	16.5~28.5
					Pleuronectidae	3	28.0~30.0
					Unidentified	16	8.0~12.0
					Unidentified	3	31.0~38.5
29	Os 36	55° 11′N 168° 30′W	July 1	1342	Lumpenidae	108	9.0~13.0
					Hexagrammos	3	17.0~19.5
					Hexagrammos	4	17.5~25.0
					Hemilepidotus	2	20.0
					Unidentified	5	8.0~12.0
30	Os 37	55° 40′N 167° 06′W	July 1	2125	*Mallotus*	1	53.5
					Ammodytes hexapterus PALLAS	654	14.5~44.5
					Lumpenidae	1	37.0
					Lumpenidae	26	
					Hexagrammos	1	37.0
					Hemilepidotus	22	19.5~31.0
					Myoxocephalus	24	14.5~22.0
					Podothecus	6	18.5~25.0
					Aspidophoroides	1	31.5
					Agonidae	4	11.0~11.5
					Liparidae	14	9.5~23.0
					Pleuronectidae	16	13.0~30.5
					Theragra chalcogramma (PALLAS)	1	24.5
					Gadidae	9	8.0~12.0
					Unidentified	82	16.0~34.0
					Unidentified	2	9.0
					Unidentified	1	12.0

Table 9. (Continued)

No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals	Range of total length (mm)
31		55° 56′N 169° 24′W	July 7	2108	*Mallotus*	1	47.5
					Ammodytes hexapterus PALLAS	8	32.0
					Anoplopoma fimbria (PALLAS)	1	17.5
					Myoxocephalus	3	19.5~26.5
					Pleuronectidae	1	12.5
					Theragra chalcogramma (PALLAS)	2	22.0
					Unidentified	15	16.0~22.5
					Unidentified	2	6.5
32	Os 40	57° 01′N 174° 30′W	July 8	1710	*Ammodytes hexapterus* PALLAS	4	
					Hexagrammos	2	22.0~25.0
33		57° 02′N 175° 29′W	July 8	2131	Lumpenidae	24	12.0~15.0
					Hemilepidotus	10	17.5~25.5
					Theragra chalcogramma (PALLAS)	2	23.5~26.5
34	Os 42	57° 00′N 179° 10′W	July 9	1417	Lumpenidae	9	
35		57° 24′N 179° 28′E	July 9	2149	Lumpenidae	2	11.0
					Hemilepidotus	2	20.5~22.5
					Unidentified	12	8.5~12.0
36	Os 43	57° 38.N 177° 59′E	July 11	1217	Lumpenidae	1	11.0
					Unidentified	1	10.5
37	Os 44	57° 32′N 176° 30′E	July 11	2059	*Hemilepidotus*	4	20.5~21.0
					Unidentified	2	
38	Os 45	56° 56′N 174° 30′E	July 12	2128	*Bathymaster*	1	53.0
					Hemilepidotus	3	20.5~21.5
39	Os 46	58° 19′N 174° 50′E	July 13	1529	No fish-larva		
40		58° 42′N 173° 34′E	July 13	2120	*Hemilepidotus*	5	20.0~29.0
41	Os 47	58° 54′N 172° 07′E	July 14	0408	*Hemilepidotus*	1	28.0
42	Os 48	59° 19′N 170° 20′E	July 14	1207	*Ammodytes hexapterus* PALLAS	3	12.0

Table 9. (Continued)

No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals	Range of total length (mm)
43	Os 49	58° 18′N 169° 58′E	July 14	2132	Unidentified	1	7.5
44	Os 50	57° 19′N 169° 58′E	July 15	1250	No fish-larva		
45	Os 51	56° 22′N 169° 58′E	July 15	2202	No fish-larva		
46	Os 52	56° 20′N 168° 03′E	July 16	1208	No fish-larva		
47	Os 53	56° 20′N 166° 18′E	July 16	2052	Lumpenidae *Hexagrammos*	1 1	15.0 20.0
48	Os 54	56° 29′N 164° 21′E	July 17	0438	No fish-larva		
49	Os 55	55° 29′N 164° 20′E	July 17	1433	No fish-larva		
50	Os 56	54° 55′N 164° 20′E	July 17	2143	*Bathymaster*	2	24.0～29.0
51	Os 57	53° 54′N 164° 16′E	July 18	1315	No fish-larva		
52	Os 58	53° 02′N 164° 16′E	July 18	2103	No fish-larva		
53	Os 59	51° 59′N 164° 04′E	July 19	1301	No fish-larva		
54	Os 60	51° 02′N 164° 18′E	July 19	2116	*Tarletonbeania crenularis* (JORDAN & GILBERT) *Bathymaster* *Pleurogrammus monopterygius*(PALLAS) *Hemilepidotus*	1 4 2 3	35.0 47.0～51.5 58.4～73.1 25.5～29.0
55	Os 61	51° 11′N 162° 48′E	July 20	1236	No fish-larva		
56	Os 62	51° 11′N 161° 23′E	July 20	2114	*Ammodytes hexapterus* PALLAS *Hexagrammos* Unidentified	101 1 4	42.0～51.0 52.1 12.0～15.5

Table 9. (Continued)

No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals	Range of total length (mm)
57	Os 63	51° 15′N 159° 53′E	July 21	1251	No fish-larva		
58	Os 64	50° 35′N 159° 00′E	July 21	2032	*Anoplopoma fimbria* (PALLAS) Liparidae *Theragra chalcogramma* (PALLAS)	1 1 17	19.0 19.5 13.0~35.0
59	Os 65	49° 35′N 159° 00′E	July 22	1259	*Theragra chalcogramma* (PALLAS)	1	
60	Os 66	48° 35′N 159° 00′E	July 22	2111	No fish-larva		
61	Os 67	47° 43′N 157° 10′E	July 23	0902	No fish-larva		
62		47° 47′N 155° 12′E	July 23	2024	No fish-larva		
63		45° 13′N 151° 03′E	July 24	2033	No fish-larva		
64		43° 17′N 148° 22′E	July 25	1933	No fish-larva		

13. Data on Salmon Gill-Net Set
(鮭鱒流網試験記録)

Gill-net sets were performed twenty times at various localities in the northern North Pacific and Bering Sea.

At each fishing, 76 to 61 tan (1 tan = 49.2 meters) of gill-net were set. The depth of net was about 5.3-5.4 meters.

Six different kinds of net having six different mesh sizes from 2.55 sun (7.6 cm) to 4.55 sun (13.6 cm) were used. In addition, a trinal net (三枚網) was also employed. These nets were arranged not in order from larger mesh size to smaller mesh size; nets of various mesh sizes were set alternately so as to eliminate the difference in catch due to the partial concentration of fish shoal at a part of a series of nets.

Operation was supervised by the captain and deck officers and all hands of crew and cadet were engaged in the work.

Recordings of the number of fish caught with nets were made by deck officers separately by mesh sizes.

Fish species taken with gill net are:

Oncorhynchus nerka (*Walbaum*), Sockeye salmon, Red salmon, Blue-back salmon, Sukkegh salmon, ベニマス, ベニサケ, ベニ

Oncorhynchus keta (*Walbaum*), Chum salmon, Dog salmon, Calico salmon, Keta salmon, サケ, シロサケ, シロ

Oncorhynchus gorbuscha (*Walbaum*), Pink salmon, Humpback salmon, カラフトマス, セツパリマス

Oncorhynchus tschawytscha (*Walbaum*), King salmon, Spring salmon, Chinock salmon, Typee salmon, Tchavike, マスノスケ

Oncorhynchus kisutch (*Walbaum*), Silver salmon, ギンマス, ギン

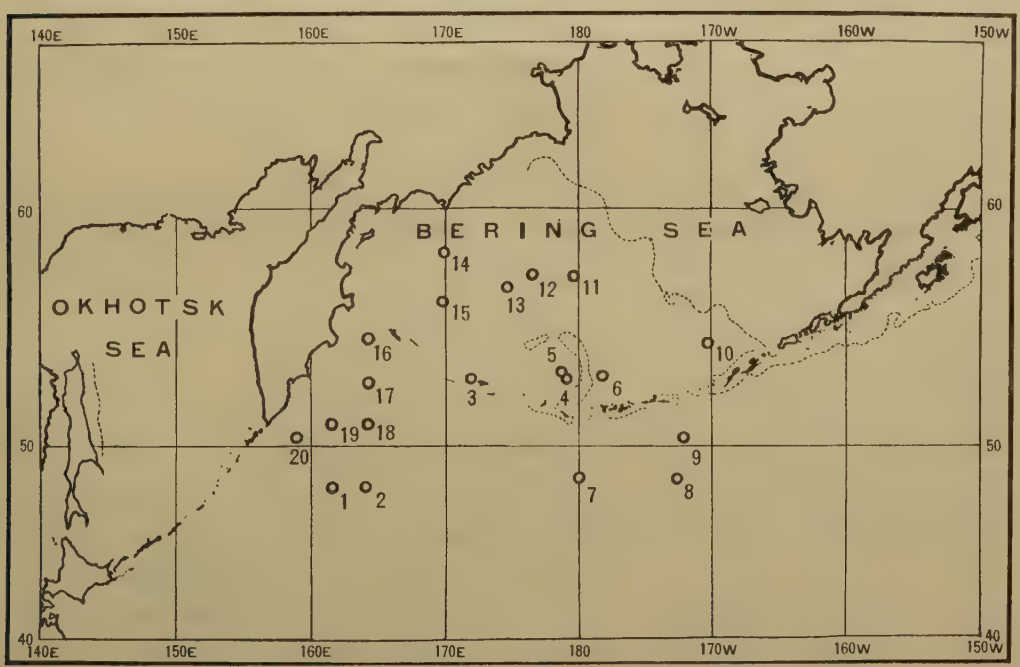

Fig. 4. Location of salmon gill net set in the "Oshoro Maru" cruise to the Bering Sea in June-July 1959

Table 10. Data on gill net operation in the "Oshoro Maru"

No. of fishing	Date and time (Zone time)				Position of net-set		Direction of drift "toward"	* Weather	Wind	
	Net set		Net haul							
	Date	time	Date	time	Lat.	Long.			Direction	Force
1	June 13	Evening	June 14	Early morning	48°00′N	161°29′E	240°	o	N E	2
2	June 14	〃	June 15	〃	48°00′N	163°58′E	180°	o	N W	2
3	June 20	〃	June 21	〃	53°04′N	171°74′E	310°～320°	m	S E	4
4	June 22	〃	June 23	〃	53°16′N	179°04′E	270°～275°	o	East	2
5	June 23	〃	June 24	〃	53°21′N	178°41′E	300°～270°	o	E N E	4
6	June 24	〃	June 25	〃	53°16′N	178°32′W	260°	f	E N E	3
7	June 25	〃	June 26	〃	48°33′N	180°00′	265°	o	N E	3
8	June 27	〃	June 28	〃	48°25′N	172°30′W	200°	o		0
9	June 28	〃	June 29	〃	50°25′N	171°59′W	180°～200°	o	W N W	3
10	June 30	〃	July 1	〃	54°44′N	170°14′W	180°	o	W N W	3
11	July 9	〃	July 10	〃	57°24′N	179°28′E	55°	o	S S W	3
12	July 11	〃	July 12	〃	57°32′N	176°30′E	135°	f	West	3
13	July 12	〃	July 13	〃	56°56′N	174°30′E	75°～ 85°	o	W S W	4
14	July 14	〃	July 15	〃	58°18′N	169°58′E	45°	c		0
15	July 15	〃	July 16	〃	56°22′N	169°58′E	80°	o	E S E	1
16	July 17	〃	July 18	〃	54°55′N	164°20′E	60°	c	W S W	3
17	July 18	〃	July 19	〃	53°02′N	164°16′E	180°	o		0
18	July 19	〃	July 20	〃	51°10′N	164°18′E	90°	b	S S W	3
19	July 20	〃	July 21	〃	51°11′N	161°23′E	70°	b	W S W	3
20	July 21	〃	July 22	〃	50°35′N	159°00′E	115°	c	South	3

* b : blue sky
c : cloudy
f : fog
m : misty
o : overcast

cruise 44 to the Bering Sea in June–July 1959

Surface temp. (C°)	Colour of sea	Trans-parency (m)	Amount of net cast (Tan) (Depth of net=5.3–5.4 maters) **						
			Mesh 2.5 Sun (7.6 mm)	Mesh 3.0 Sun (91 mm)	Mesh 3.5 Sun (106 mm)	Mesh 4.0 Sun (121 mm)	Mesh 4.25Sun (127 mm)	Mesh 4.5 Sun (136 mm)	Trinal net (三枚網)
4.9			5	7	9	23	10	14	6
5.4	4	11	5	7	9	25	10	14	6
6.1			5	7	9	24	10	14	6
6.0	4	13	5	7	9	23	9	14	6
5.8	4	18	5	7	10	23	12	13	6
5.7	4	15	5	7	10	24	12	13	5
6.5			5	7	10	24	12	13	4
7.5			5	7	10	24	12	13	4
7.4	4		5	7	10	23	12	13	4
7.1			5	7	10	23	12	13	4
6.4	4	15	4	7	7	23	11	11	0
6.8	4		4	7	7	23	11	11	0
6.9			4	7	7	23	11	11	0
10.3			4	7	7	22	10	11	0
8.6			4	7	7	22	11	11	0
9.3			4	7	7	22	11	11	0
11.5			4	7	7	21	11	11	0
10.0			4	7	7	21	11	11	0
13.0			4	7	7	21	11	11	0
8.1	4	15	4	7	7	21	11	11	0

** 1 Tan=49.2 meters in case of 2.5–4.0 Sun, & 4.5 Sun mesh net

1 Tan=53.2 meters in case of 4.2 Sun mesh net

1 Tan=31 meters in case of trinal net

Table 11. Data on catch of salmon in the "Oshoro Maru"

No. of fishing	Number of fish caught									
	Mesh size of net : 2.5 Sun					Mesh size of net : 30 Sun				
	Sockeye (ベニ)	Chum (シロ)	Pink (マス)	King (マスノスケ)	Silver (ギン)	Sockeye (ベニ)	Chum (シロ)	Pink (マス)	King (マスノスケ)	Silver (ギン)
1	0	0	2	0	0	0	3	8	0	0
2	0	1	0	0	0	1	2	2	0	0
3	0	0	0	0	0	0	10	3	0	0
4	1	12	28	0	0	1	31	187	0	0
5	3	4	10	0	0	5	9	53	0	0
6	2	8	7	0	0	1	22	44	0	0
7	0	22	3	0	0	0	1	19	0	0
8	2	5	3	0	0	0	4	27	0	0
9	1	0	1	0	0	2	7	8	0	0
10	1	0	0	0	0	0	5	0	0	0
11	3	0	5	0	0	1	3	79	0	0
12	1	10	1	0	0	3	10	7	0	0
13	3	0	0	0	0	0	10	36	0	0
14	4	2	5	0	0	17	7	41	0	0
15	4	1	4	0	0	5	14	51	0	0
16	32	0	0	0	0	29	4	6	0	0
17	3	1	0	0	0	7	1	1	0	0
18	1	0	0	0	0	9	1	2	0	0
19	1	3	0	0	0	4	4	0	0	0
20	1	0	0	0	0	1	0	1	0	0

cruise 44 to the Bering Sea in June–July 1959

Mesh size of net : 3.5 Sun					Mesh size of net : 4.0 Sun				
Sockeye (ベニ)	Chum (シロ)	Pink (マス)	King (マスノスケ)	Silver (ギン)	Sockeye (ベニ)	Chum (シロ)	Pink (マス)	King (マスノスケ)	Silver (ギン)
0	8	28	0	0	0	20	61	0	0
1	14	6	0	0	5	21	66	0	0
0	17	15	0	0	2	39	20	0	0
6	0	354	0	0	65	32	353	0	0
3	9	127	0	0	15	14	120	0	0
5	22	74	0	0	9	47	128	0	0
0	5	24	0	0	1	7	16	0	3
1	8	60	0	0	1	14	23	0	1
1	12	42	1	0	10	12	49	0	2
2	11	0	0	0	11	15	3	0	0
3	3	248	0	0	11	12	509	0	0
1	11	21	0	0	5	10	43	1	0
0	1	76	0	0	9	2	99	0	0
8	7	67	0	0	16	21	161	0	0
0	3	97	0	0	4	10	152	0	0
31	7	27	0	0	65	12	68	0	0
7	1	1	0	0	27	8	4	0	0
7	3	0	0	1	20	11	2	0	6
4	9	2	0	0	22	19	6	0	2
3	1	4	0	0	13	14	16	0	0

Table 11.

No. of fishing	Number of fish caught									
	Mesh size of net : 4.2 Sun					Mesh size of net : 4.5 Sun				
	Sockeye (ベニ)	Chum (シロ)	Pink (マス)	King (マスノスケ)	Silver (ギン)	Sockeye (ベニ)	Chum (シロ)	Pink (マス)	King (マスノスケ)	Silver (ギン)
1	0	11	17	0	0	0	9	11	0	0
2	5	14	23	0	0	1	14	28	0	0
3	1	9	0	0	0	0	5	0	0	0
4	25	1	57	0	0	37	4	19	0	0
5	18	9	13	0	0	8	6	13	0	0
6	9	9	14	0	0	8	7	12	0	0
7	0	1	0	0	0	0	1	0	0	0
8	0	3	0	0	0	0	5	1	0	0
9	3	3	11	0	0	7	6	3	0	0
10	7	13	1	0	0	6	2	1	0	0
11	1	2	138	0	0	2	12	97	0	0
12	2	2	5	0	0	4	5	4	0	0
13	1	0	23	0	0	0	0	7	0	0
14	4	4	28	0	0	5	12	16	0	0
15	3	4	21	0	0	2	3	8	0	0
16	19	3	16	0	0	14	2	11	0	0
17	12	1	1	0	0	8	3	0	0	0
18	5	4	3	0	1	6	6	1	2	0
19	11	10	1	3	2	9	7	0	0	0
20	3	2	0	0	0	7	4	6	0	0

(Continued)

Trammel net (三枚網)				
Sockeye (ベニ)	Chum (シロ)	Pink (マス)	King (マスノスケ)	Silver (ギン)
0	2	1	0	0
1	3	10	0	0
2	4	0	0	0
6	1	62	0	0
2	6	16	0	0
0	0	14	0	0
0	6	4	0	0
0	1	7	0	0
9	15	10	0	0
1	1	0	0	0

14. Data on Measurement of Biological Characters of Salmon
(鮭鱒生物学的測定記録)

Specimens were sampled at random from the mixed catch at every fishing operation. Measurement of biological characters and sex determination were carried out on board.

Age determination by scale reading was made later by T. Kubo of the University.

Tabulation of data was made by T. Kubo of the University.

Abbreviations:

Sex	F.	Female
	M.	Male
F. L.		Fork length
B. W.		Body weight
G. W.		Gonad weight

Table 12. Data on measurement of biological characters of salmon in the "Oshoro Maru" cruise 44 to the Bering Sea in June-July 1959

1. Pink salmon, カラフトマス (all 2 years old)

No. of fishing	No. of specimen	Sex	F. L. (mm)	B.W. (g)	G.W. (g)
14	1	M	470	1400	90
	2	M	485	1400	85
	3	M	475	1350	100
	4	M	455	1300	70
	5	M	475	1300	85
	6	M	465	1150	70
	7	M	460	1200	75
	8	F	465	1200	100
	9	M	435	1050	100
	10	M	440	1150	90
15	1	M	520	1900	120
	2	F	450	1100	110
	3	M	435	1150	100
	4	M	440	1100	80
	5	M	450	1150	90
	6	M	470	1250	80
	7	M	435	1000	60
	8	F	455	1100	140
	9	F	465	1200	120
	10	M	460	1200	90
16	1	半精卵	490	1550	卵子 4 精子 2
	2	F	450	1150	110
16	3	F	430	1050	70
	4	F	425	950	100
	5	F	445	1100	100
	6	M	525	2000	140
	7	F	460	1250	110
	8	M	495	1450	110
	9	F	460	1250	100
	10	M	450	1200	70
17	1	F	455	1200	90
	2	F	500	1600	140
	3	M	525	1900	150
	4	M	470	1250	80
	5	M	485	1450	100
	6	F	465	1300	130
	7	M	395	750	2
18	1	F	465	1600	140
	2	F	470	1300	100
	3	M	500	1700	90
	4	F	420	950	110
	5	F	475	1300	20

Table 12. (Continued)

No. of fishing	No. of specimen	Sex	F. L. (mm)	B.W. (g)	G.W. (g)
19	1	M	550	2200	120
	2	F	530	2100	150
	3	F	455	1200	100
	4	F	490	1600	110
	5	F	460	1300	120
	6	F	485	1450	110
	7	F	450	1050	110
	8	F	445	1050	90
20	1	F	460	1300	110
	2	F	460	1250	110
	3	F	530	2200	120
	4	F	495	1700	150
	5	F	460	1350	120
	6	F	490	1600	120
	7	F	480	1550	100
	8	F	505	1800	150
	9	M	515	1900	90
	10	F	470	1400	140

2. Chum salmon, シロサケ

No. of fishing	No. of specimen	Sex	F. L. (mm)	B.W. (g)	G.W. (g)	Age
1	1	F	550	1900	40	4
	2	M	535	2000	5	4
	3	M	530	1600	5	4
	4	F	490	1700	50	4
	5	M	510	1600	5	4
	6	F	490	1600	45	3
	7	F	490	1600	30	4
	8	M	570	2300	55	4
	9	F	540	1900	20	4
	10	F	500	1650	30	4
	11	M	540	1800	5	4
	12	F	520	1850	95	4
	13	M	510	1600	10	4
	14	F	490	1400	40	4
	15	F	500	1500	30	4
	16	M	560	2000	10	4
	17	F	500	1750	35	4
	18	F	500	1400	25	4
	19	F	505	1700	70	4
1	20	M	560	2000	10	4
	21	F	540	1900	50	4
	22	F	570	1800	65	4
	23	M	470	1200	5	4
	24	F	550	2400	60	4
	25	F	570	1800	45	4
	26	F	490	1600	25	4
	27	F	495	1850	30	4
	28	F	530	1800	50	4
	29	F	540	1900	45	4
	30	F	530	2000	40	4
2	1	F	580	2400	45	4
	2	F	510	1600	65	4
	3	F	530	1800	60	4
	4	M	560	2300	5	4
	5	M	560	2400	50	4
	6	M	490	1700	10	4
	7	M	540	2100	5	4
	8	M	560	2400	25	4
	9	F	510	1900	70	4
	10	F	510	1900	50	4
	11	F	510	1800	30	4
	12	F	530	1900	40	4
	13	F	525	2100	30	4
	14	F	530	2200	70	4
	15	F	540	2100	45	4
	16	F	525	2100	85	4
	17	F	515	1900	35	4
	18	F	580	2200	30	4
	19	M	530	1900	10	4
	20	M	550	2200	20	4
	21	M	540	2000	25	4
	22	M	520	1700	50	4
	23	M	530	1700	5	4
	24	M	515	2000	5	4
	25	M	540	2000	10	4
	26	F	590	2400	65	4
	27	F	530	2000	40	4
	28	F	510	1900	35	4
	29	M	550	2100	25	4

Table 12. (Continued)

No. of fishing	No. of specimen	Sex	F. L. (mm)	B.W. (g)	G.W. (g)	Age
3	1	F	450	1000	5	4
	2	F	465	1100	10	4
	3	M	455	1000	5	3
	4	M	535	1700	5	4
	5	M	550	2200	10	4
	6	F	530	2100	60	4
	7	F	550	2100	50	4
	8	F	540	1900	85	4
	9	F	530	1800	10	4
	10	M	485	1100	5	4
	11	F	455	1100	10	4
	12	F	450	1100	10	3
	13	M	545	2000	55	4
	14	M	490	1400	5	4
	15	F	520	1700	30	4
	16	F	480	1200	15	4
	17	M	505	1400	5	4
	18	F	530	2000	130	4
	19	F	510	1600	15	4
	20	F	450	1100	15	4
	21	F	500	1600	15	4
	22	F	570	2200	65	4
	23	F	545	1800	70	4
	24	F	520	1700	45	4
	25	M	630	3400	75	4
	26	M	600	3000	60	4
	27	F	480	1200	10	4
	28	F	480	1100	10	4
	29	F	500	1400	10	4
	30	F	500	1400	15	4
4	1	M	545	2050	110	4
	2	F	565	2300	190	4
	3	F	550	2250	230	4
	4	F	490	1250	10	4
	5	F	510	1600	15	4
	6	F	405	750	5	3
	7	F	470	1100	10	3
	8	M	490	2300	100	4
	9	M	460	1250	5	4
	10	F	560	2200	80	4
	11	F	550	2200	200	4
4	12	F	500	1500	15	4
	13	F	550	1950	120	4
	14	F	425	850	7	3
	15	M	560	1750	5	4
	16	M	425	850	2	3
	17	F	480	1300	15	4
	18	F	440	850	8	
	19	F	440	1000	7	3
	20	M	555	1800	13	4
	21	F	580	2450	75	4
	22	F	545	2250	130	4
	23	F	470	1200	12	4
	24	F	520	1950	48	4
	25	F	520	1700	16	4
	26	F	455	1000	12	4
	27	M	580	2500	50	4
	28	F	480	1150	12	4
	29	M	430	850	2	3
	30	F	530	2100	75	4
5	1	F	485	1300	16	4
	2	F	530	1900	135	4
	3	F	440	950	10	3
	4	F	555	2100	180	4
	5	F	530	1800	15	4
	6	M	535	1600	4	4
	7	F	545	1700	14	4
	8	F	485	1250	11	4
	9	F	480	1300	15	4
	10	M	420	800	4	3
	11	F	500	1400	15	4
	12	F	550	2150	47	3
	13	M	505	1400	4	4
	14	M	430	900	3	3
	15	F	405	750	7	3
	16	M	430	900	3	3
	17	F	500	1300	12	4
	18	F	415	850	8	3
	19	F	430	900	7	3
	20	M	505	1500	4	4
	21	M	510	1700	5	4
	22	M	530	1600	7	4

Table 12. (Continued)

No. of fishing	No. of specimen	Sex	F. L. (mm)	B.W. (g)	G.W. (g)	Age
5	23	M	525	1750	4	4
	24	F	415	850	7	3
	25	M	435	900	5	3
	26	F	560	2150	115	4
	27	M	415	750	4	3
	28	M	485	1350	5	4
	29	M	545	2000	4	4
	30	F	530	1950	85	4
6	1	M	540	2000	35	3
	2	F	500	1060	15	4
	3	F	480	1200	12	4
	4	M	520	1800	5	4
	5	M	520	1700	4	3
	6	M	440	950	3	3
	7	M	440	1000	3	3
	8	M	405	750	5	3
	9	F	440	1000	7	3
	10	M	465	1050	3	4
	11	F	435	950	8	3
	12	F	405	800	6	3
	13	F	455	1200	13	4
	14	F	435	1000	5	3
	15	M	435	1000	2	3
	16	F	445	1200	8	3
	17	M	430	950	3	3
	18	F	470	1200	11	3
	19	M	450	1100	3	3
	20	M	415	850	3	3
	21	F	565	2450	95	4
	22	F	415	900	6	3
	23	F	580	2450	300	4
	24	M	565	2450	16	4
	25	F	400	1500	14	4
	26	F	420	850	5	3
	27	M	480	1350	5	3
	28	F	500	1650	140	4
	29	F	560	2450	11	4
	30	F	455	1200	12	4
7	1	F	485	1350	12	4
	2	M	455	1150	6	3
	3	M	525	1750	3	4
	4	M	610	3400	12	4
	5	F	485	1350	11	4
	6	F	320	350	1	2
	7	F	410	750	6	3
	8	M	400	650	2	3
	9	M	535	2050	55	4
	10	M	405	800	3	3
	11	M	390	700	4	3
	12	M	320	350	2	2
	13	M	330	350	2	2
	14	F	335	400	5	2
	15	M	320	300	5	3
	16		450	1050	5	4
	17	M	620	3400	180	4
	18	M	455	2050	4	3
	19		455	1100	10	3
8	1	F	465	1200	10	3
	2	M	455	1150	5	3
	3	F	565	2500	100	4
	4	M	425	1000	3	3
	5	M	395	600	3	3
	6	M	405	700	4	3
	7	M	515	1700	13	3
	8	M	500	1750	30	4
	9	M	500	1650	20	3
	10	M	500	1500	7	3
	11	M	570	2400	4	4
	12	M	430	1000	3	3
	13	M	400	750	20	3
	14	F	570	2750	150	4
	15	F	460	1250	15	3
	16	F	410	750	7	3
	17	M	470	1350	60	3
	18	F	440	1000	7	3
	19	M	420	850	5	3
	20	F	445	1000	8	3
	21	M	350	500	4	2
	22	M	445	1150	8	3
	23	F	600	3150	50	4
	24	M	565	1900	14	4

Table 12. (Continued)

No. of fishing	No. of specimen	Sex	F. L. (mm)	B.W. (g)	G.W. (g)	Age
8	25	F	565	2600	160	
	26	M	435	400	3	2
	27	M	335	450	4	2
	28	F	340	400	5	2
	29	F	400	700	7	3
	30	M	410	750	3	3
9	1	F	480	1250	10	3
	2	M	610	2600	10	4
	3	F	500	1400	25	4
	4	M	440	1050	4	4
	5	M	465	1200	4	3
	6	F	380	650	5	3
	7	F	570	1500	230	4
	8	F	600	3000	140	4
	9	F	600	2700	160	3
	10	M	480	1400	3	4
	11	F	565	2550	13	4
	12	F	500	1950	55	4
	13	F	565	2200	160	3
	14	M	440	900	3	3
	15	M	410	750	3	3
	16	F	565	1950	25	4
	17	M	410	700	3	3
	18	F	400	700	5	3
	19	F	410	750	5	3
	20	F	590	280	170	4
	21	M	410	800	6	3
	22	F	400	800	8	3
	23	F	545	2700	150	4
	24	M	505	2300	120	4
	25	M	450	1150	3	3
	26	F	590	2500	200	5
	27	M	445	850	3	3
	28	F	470	1200	10	3
	29	F	565	2400	160	4
	30	F	580	2700	180	4
10	1	F	600	2600	20	3
	2	M	585	2850	150	3
	3	F	540	1850	15	4
	4	M	540	1700	3	4
	5	F	510	1500	12	4
10	6	M	545	2200	3	4
	7	M	540	2100	80	4
	8	F	460	1250	8	4
	9	F	570	2300	200	3
	10	F	520	1650	15	4
	11	F	535	2000	20	4
	12	M	655	4000	45	4
	13	F	595	2650	220	4
	14	F	555	2250	190	3
	15	F	510	2400	13	4
	16	M	520	1350	3	4
	17	M	620	1650	200	4
	18	M	580	2900	4	4
	19	F	525	1800	14	4
	20	M	495	1400	3	3
	21	M	540	1900	3	4
	22	F	580	2300	80	4
	23	F	535	2050	250	3
	24	F	540	2100	120	3
	25	M	585	2300	3	4
	26	F	535	1700	13	4
	27	F	500	1500	15	4
	28	F	510	1700	15	4
	29	M	480	1350	2	3
	30	F	485	1350	10	4
11	1	M	515	1750	7	4
	2	M	500	1500	5	4
	3	M	490	1450	5	4
	4	M	580	2330	8	4
	5	F	590	3000	150	4
	6	F	530	1850	180	4
	7	M	520	1500	5	4
	8	F	435	950	7	3
	9	M	470	1350	4	3
	10	F	600	2550	230	4
	11	F	560	2150	240	4
	12	F	490	1400	15	4
	13	M	525	1850	5	4
	14	M	465	1150	5	4
	15	M	315	400	2	2
	16	F	425	850	5	3

Table 12. (Continued)

No. of fishing	No. of specimen	Sex	F. L. (mm)	B.W. (g)	G.W. (g)	Age
11	17	M	455	1150	2	3
	18	M	495	1550	2	4
	19	M	595	2950	160	4
	20	F	440	1000	8	3
	21	F	500	1550	12	4
	22	F	425	950	6	3
	23	F	435	1050	4	3
	24	F	475	1300	11	4
	25	F	455	1150	14	4
	26	M	430	950	3	3
	27	F	505	1550	12	4
	28	F	600	3200	290	4
	29	F	500	1350	14	4
	30	F	475	1250	14	4
12	1	M	630	3500	130	4
	2	F	610	3000	220	4
	3	M	640	3700	80	4
	4	M	430	900	5	3
	5	F	420	700	10	3
	6	F	440	900	9	3
	7	M	505	1350	5	3
	8	F	395	700	8	4
	9	M	375	600	7	3
	10	F	345	400	5	2
	11	F	440	900	7	3
	12	F	470	1150	12	4
	13	M	420	850	3	3
	14	F	405	700	6	
	15	F	525	1600	17	4
13	1	M	500	1400	9	3
	2	M	425	950	3	3
	3	M	400	750	2	3
	4	F	450	1100	11	3
	5	M	410	700	3	3
	6	M	390	600	8	3
	7	F	390	600	8	3
	8	F	410	750	10	3
	9	M	395	700	3	3
	10	M	340	450	2	2
	11	F	425	850	8	3
13	12	F	455	950	10	3
	13	F	450	1000	10	3
	14	F	415	750	10	3
	15	M	430	1000	3	3
	16	M	440	900	5	3
	17	M	400	750	5	3
	18	M	395	650	3	3
14	1	F	560	2200	100	
	2	F	430	1000	5	3
	3	F	570	3300	240	4
	4	F	500	2100	320	4
	5	M	425	850	2	3
	6	M	495	1400	3	4
	7	M	490	1300	2	4
	8	M	475	1200	8	4
	9	M	385	650	2	3
	10	M	495	1650	3	4
	11	M	570	2750	2	
	12	F	480	1550	180	
	13	F	570	2500	10	4
	14	F	500	1700	150	4
	15	F	555	2300	7	4
	16	F	635	3600	240	4
	17	M	540	1850	80	4
	18	M	490	1300	2	4
	19	M	500	1650	3	4
	20	M	435	950	2	3
	21	M	415	850	1	3
	22	M	520	1950	120	4
	23	F	595	2700	270	4
	24	M	475	1350	2	4
	25	M	405	800	2	3
	26	F	615	3400	270	4
	27	F	395	700	5	3
	28	F	590	2600	230	4
	29	F	640	3500	130	4
	30	F	610	3600	200	4
15	1	M	640	1900	3	4
	2	M	390	600	2	3
	3	M	460	1100	2	4

Table 12. (Continued)

No. of fishing	No. of specimen	Sex	F. L. (mm)	B.W. (g)	G.W. (g)	Age
15	4	F	420	850	4	3
	5	F	435	900	5	3
	6	F	415	850	4	
	7	M	685	2350	85	4
	8	F	425	850	6	3
	9	M	485	1250	4	4
	10	F	435	950	5	3
	11	F	435	900	5	3
	12	M	495	1200	2	4
	13	M	435	900	2	3
	14	M	660	2300	150	4
	15	M	710	3200	40	4
	16	F	415	750	5	
	17	M	445	1050	3	3
	18	F	425	850	4	3
	19	F	450	1050	5	3
	20	F	570	2100	160	4
	21	M	440	950	2	3
	22	M	455	1050	5	3
	23	M	425	800	2	3
	24	F	495	1400	10	4
	25	F	420	800	5	3
	26	M	420	850	1	3
	27	F	420	1000	5	3
	28	M	415	900	2	3
	29	F	450	1000	4	3
	30	F	440	950	5	3
16	1	F	500	1500	7	3
	2	F	490	1250	7	4
	3	F	400	600	2	2
	4	M	430	1000	1	3
	5	M	510	1600	2	3
	6	M	550	2250	2	3
	7	M	430	950	1	3
	8	F	610	3500	210	4
	9	F	415	900	5	3
	10	M	510	1800	2	3
	11	M	440	1000	2	3
	12	M	605	3200	180	4
	13	F	495	1500	10	4
	14	M	440	1050	1	3
	15	M	520	1800	2	3
	16	M	690	4200	10	4
	17	M	500	1700	2	4
	18	M	505	1500	2	4
	19	M	445	1100	2	3
17	1	F	590	3000	210	4
	2	F	550	2000	140	4
	3	F	620	3600	200	4
	4	F	580	2500	220	4
	5	M	575	2650	140	4
	6	F	565	2400	220	4
	7	F	480	1400	125	3
	8	F	565	2250	140	4
	9	F	555	2200	200	4
	10	F	550	2200	160	4
	11	M	610	3200	220	4
18	1	M	525	1900	2	4
	2	M	535	3600	150	4
	3	M	610	3400	200	4
	4	F	600	3300	200	4
	5	M	620	3500	180	4
	6	F	450	1300	10	3
	7	M	550	2150	2	5
	8	M	610	3300	120	4
	9	M	555	2150	3	4
	10	M	485	1450	2	3
	11	M	540	2100	3	4
	12	M	500	1700	2	3
	13	M	515	1750	2	3
	14	F	580	1650	190	4
	15	F	500	2250	15	4
	16	M	555	1700	1	4
	17	M	530	1750	2	4
	18	F	540	2000	15	4
	19	M	540	1900	2	4
	20	F	430	1100	10	3
	21	F	480	1450	10	3
	22	F	445	1200	10	3
	23	M	500	1450	1	3
	24	F	610	3400	250	4

Table 12. (Continued)

No. of fishing	No. of specimen	Sex	F. L. (mm)	B.W. (g)	G.W. (g)	Age
19	1	F	485	1700	15	3
	2	F	580	2600	230	4
	3	F	650	3500	40	4
	4	M	600	3400	140	4
	5	F	570	3000	250	4
	6	F	575	2600	220	4
	7	M	510	1550	2	3
	8	F	530	2150	220	4
	9	F	535	1900	15	4
	10	M	380	650	1	3
	11	F	620	4200	330	4
	12	F	580	2700	230	4
	13	M	560	2400	20	4
	14	F	690	3200	300	4
	15	F	450	1400	5	3
	16	F	525	1750	100	4
	17	M	540	2100	140	4
	18	M	500	1600	3	
	19	M	525	2000	110	4
	20	M	320	350	1	2
	21	F	610	3000	300	5
	22	F	510	1650	10	4
	23	F	480	1450	10	3
	24	M	530	1950	2	
	25	M	505	1750	2	3
	26	F	515	1900	170	4
	27	M	560	2450	100	4
	28	F	490	1550	15	4
	29	F	570	2500	200	4
	30	F	580	2650	240	
20	1	M	470	1350	1	3
	2	F	565	2150	300	4
	3	F	555	2450	200	4
	4	F	580	2600	200	4
	5	F	550	2350	180	4
	6	F	560	2650	250	4
	7	M	615	2850	80	4
	8	F	590	2800	250	4
	9	F	635	4000	380	4
	10	F	600	3200	200	4
	11	M	645	4100	220	4
	12	M	600	2700	200	
	13	F	575	2600	90	4
	14	M	645	3800	30	4
	15	F	530	2150	110	4
	16	M	495	1500	50	4
	17	F	545	2400	180	4
	18	M	465	1400	60	

3. Sockeye salmon, ベニサケ

No. of fishing	No. of specimen	Sex	F. L. (mm)	B.W. (g)	G.W. (g)	Age
2	1	F	515	1700	50	5_3
	2	F	535	2350	55	4_2
	3	M	520	2000	35	5_3
	4	F	500	1700	70	
	5	F	520	2000	55	4_2
	6	F	550	2200	75	6_3
	7	F	520	2000	65	—
	8	M	565	2300	10	5_3
3	1	F	545	2100	55	5_3
	2	M	550	2200	5	
	3	M	500	1400	5	5_3
	4	F	530	1900	70	5_2
	5	F	520	1800	150	5_2
4	1	F	545	1950	85	5_3
	2	F	495	1350	30	5_3
	3	M	590	2750	80	5_3
	4	M	625	3400	65	5_2
	5	F	520	1750	65	4_2
	6	F	510	1700	80	6_4
	7	F	560	2100	50	5_3
	8	F	540	1900	35	5_3
	9	M	570	2300	15	4_2
	10	F	495	1550	80	4_2
	11	F	510	1800	90	5_3
	12	F	525	1650	60	5_3
	13	F	530	1550	60	5_3
	14	M	535	3200	55	6_3
	15	F	540	1850	75	5_3
	16	F	530	1850	65	4_2

Table 12. (Continued)

No. of fishing	No. of specimen	Sex	F. L. (mm)	B.W. (g)	G.W. (g)	Age
4	17	F	500	1550	50	6_4
	18	F	520	1950	45	4_2
	19	F	535	1700	70	5_3
	20	F	500	1700	60	4_2
	21	F	500	1500	90	4_2
	22	F	590	2700	120	6_3
	23	M	540	2150	50	5_3
	24	F	555	2150	95	$4_?$
	25	M	570	2750	45	5_3
	26	F	530	2100	50	5_3
	27	F	510	1750	60	5_3
	28	M	560	2400	20	5_3
	29	M	600	2600	25	
	30	M	530	2000	40	4_2
5	1	M	585	2650	60	5_3
	2	M	545	2000	30	5_3
	3	M	530	1650	8	5_3
	4	F	555	2650	105	5_3
	5	F	510	1650	70	6_4
	6	F	540	2000	70	5_3
	7	F	600	2450	135	5_2
	8	F	520	1600	40	5_3
	9	F	480	1300	130	5_3
	10	M	590	2200	55	6_3
	11	F	555	2100	50	4_2
	12	M	490	1450	30	5_3
	13	F	600	2500	43	5_3
	14	F	495	1550	115	5_3
	15	M	665	2600	40	6_3
	16	M	550	2400	40	4_2
	17	M	550	1880	20	4_2
	18	F	535	1850	80	5_3
	19	M	580	2500	5	6_3
	20	F	485	1280	12	5_3
	21	F	500	1250	12	5_3
	22	M	490	1280	4	5_3
	23	F	510	1700	100	4_2
	24	F	535	1900	90	5_3
	25	M	540	1800	5	
	26	F	535	1850	65	5_3
	27	M	480	1350	3	5_3
5	28	M	550	2200	24	5_3
	29	F	545	1900	65	5_3
	30	F	520	1700	80	5_3
6	1	F	570	2600	140	5_2
	2	F	510	1750	100	5_3
	3	M	580	2450	23	5_3
	4	M	655	3900	25	6_3
	5	F	560	2000	90	5_2
	6	M	520	1600	50	5_3
	7	M	510	1550	40	5_3
	8	F	575	2450	90	6_3
	9	M	605	3000	43	6_3
	10	M	570	2300	44	5_3
	11	F	495	1450	80	4_2
	12	M	535	2000	38	4_2
	13	M	595	2850	55	4_2
	14	M	535	1800	20	4_2
	15	F	500	1450	60	5_3
	16	M	520	1850	70	5_3
	17	M	510	1600	35	5_3
	18	M	620	3000	20	5_2
	19	F	495	1450	80	5_3
	20	F	465	1300	37	
	21	M	580	2500	28	4_2
	22	F	500	1850	140	4_2
	23	F	540	2000	60	5_3
	24	F	585	2600	80	6_3
	25	F	605	3000	110	6_3
	26	M	505	1750	41	5_3
	27	F	565	2300	120	5_3
	28	F	595	2600	260	5_3
	29	F	515	1700	100	5_3
	30	F	580	2500	80	5_2
7	1	F	490	1350	12	5_3
8	1	F	345	550	5	4_2
	2	M	445	950	3	5_3
	3	M	510	1300	3	4_2
9	1	M	560	1950	5	4_2
	2	F	515	1750	33	5_3

Table 12. (Continued)

No. of fishing	No. of specimen	Sex	F. L. (mm)	B.W. (g)	G.W. (g)	Age
9	3	F	570	2200	110	5_2
	4	M	630	3250	15	5_2
	5	F	420	950	6	4_2
	6	M	555	2200	8	5_3
	7	M	635	3250	20	5_2
	8	M	475	1300	3	5_3
	9	M	455	1150	5	5_3
	10	F	555	2250	75	5_2
	11	F	580	2700	130	5_3
	12	F	515	1550	30	5_3
	13	F	500	1600	50	4_2
	14	M	600	2700	5	5_3
	15	F	555	2150	50	6_3
	16	F	585	2400	60	6_3
	17	F	590	2300	70	6_3
	18	M	600	2650	8	6_3
	19	M	515	1500	4	5_3
	20	M	570	2250	10	5_3
	21	M	475	1200	3	5_3
	22	F	490	1350	11	
	23	F	555	2350	30	5_2
	24	F	465	1200	12	5_3
	25	M	550	2100	15	5_3
	26	F	510	1600	80	5_3
	27	F	545	2550	140	5_3
	28	F	435	1000	8	4_2
	29	M	500	1600	60	5_3
	30	F	540	1900	44	6_4
10	1	M	605	2950	90	6_3
	2	F	585	2550	125	6_3
	3	F	565	2650	60	6_3
	4	M	570	2500	45	5_3
	5	M	565	2500	60	
	6	F	530	1750	85	6_4
	7	F	520	1700	115	5_3
	8	F	590	2600	160	5_2
	9	F	515	1900	90	5_3
	10	F	595	2500	200	5_2
	11	F	570	2300	150	5_2
	12	M	610	3000	80	
	13	M	600	2800	25	6_3
10	14	M	630	3500	35	6_3
	15	M	520	1850	30	5_3
	16	M	560	2700	80	4_2
	17	F	560	2250	80	4_2
	18	F	555	2350	120	5_2
	19	F	590	2750	110	6_3
	20	M	590	2900	40	5_3
11	1	M	525	1800	4	5_3
	2	M	495	1450	4	4_2
	3	M	500	1400	3	5_3
	4	M	540	1600	4	5_3
	5	M	505	1500	3	5_3
	6	F	455	1100	10	4_2
	7	F	480	1300	10	5_3
	8	M	515	1500	5	
	9	M	475	1350	5	5_3
	10	F	455	1150	10	5_3
	11	M	445	1200	3	5_3
	12	M	465	1250	3	4_2
	13	M	465	1350	5	4_2
	14	M	485	1450	2	5_3
	15	F	505	1550	13	5_3
	16	M	500	1500	3	4_2
	17	M	515	1450	3	5_3
	18	M	465	1200	2	5_3
	19	M	485	1400	4	5_3
12	1	F	460	1100	10	
	2	M	460	1200	2	4_2
	3	F	480	1250	10	5_3
	4	F	520	1700	13	5_3
	5	M	445	1100	2	4_2
	6	F	475	1250	10	5_3
	7	M	450	1100	4	4_2
	8	F	440	1100	10	5_3
	9	M	490	1400	4	5_3
	10	F	475	1200	12	4_2
	11	M	485	1250	5	4_2
13	1	F	465	1200	15	4_2
	2	M	475	1200	3	5_3
	3	M	505	1400	3	5_3

Table 12. (Continued)

No. of fishing	No. of specimen	Sex	F. L. (mm)	B.W. (g)	G.W. (g)	Age
13	4	F	490	1450	15	5_3
	5	F	490	1300	13	5_3
	6	M	500	1400	3	4_2
	7	F	490	1350	16	6_4
14	1	M	535	1800	14	5_3
	2	F	470	1250	15	5_3
	3	M	475	1350	3	4_2
	4	M	480	1350	2	6_4
	5	F	485	1300	10	5_3
	6	M	455	1100	6	5_3
	7	F	470	1200	10	4_2
	8	M	510	1500	2	5_3
	9	F	430	1000	7	4_2
	10	F	490	1550	10	5_3
	11	F	440	1000	8	4_2
	12	M	500	1600	5	4_2
	13	M	475	1350	2	5_3
	14	F	475	1280	8	5_3
	15	F	490	1350	12	5_3
	16	F	455	1150	7	5_3
	17	F	350	500	3	
	18	M	495	1500	3	4_2
	19	M	580	2600	5	4_2
	20	M	490	1400	2	5_3
	21	M	480	1400	2	
	22	M	500	1600	5	4_2
	23	M	490	1350	3	4_2
	24	M	375	600	2	4_3
	25	M	575	2400	3	
	26	M	490	1350	5	4_2
	27	F	470	1300	7	6_4
	28	F	475	1300	6	4_2
	29	M	550	2200	5	5_2
	30	M	530	1900	7	4_2
15	1	M	485	1400	2	6_4
	2	M	475	1200	2	5_3
	3	F	460	1250	5	5_3
	4	M	445	1050	2	
	5	M	500	1600	2	4_2
	6	M	625	3600	20	6_3
15	7	F	450	1100	7	4_2
	8	M	485	1350	2	6_4
	9	F	455	1100	8	4_2
	10	F	420	1250	10	6_4
	11	M	470	1250	2	5_3
	12	M	495	1450	2	4_2
	13	M	530	1650	3	5_3
	14	F	325	300	3	
	15	F	460	2150	8	4_2
16	1	M	580	2650	90	6_4
	2	F	510	1400	10	5_2
	3	F	425	850	5	4_2
	4	M	450	1100	2	4_2
	5	F	555	2450	150	
	6	F	545	1950	220	6_3
	7	M	385	800	40	4_3
	8	F	500	1700	10	5_2
	9	F	480	1200	10	6_4
	10	F	500	1500	7	5_3
	11	F	500	1450	5	4_2
	12	M	520	1800	2	5_3
	13	M	370	550	1	4_3
	14	M	470	1200	1	5_3
	15	M	630	3400	30	7_4
	16	F	505	1550	15	6_3
	17	M	460	1200	2	
	18	M	490	1400	3	5_3
	19	M	460	1200	2	5_3
	20	M	510	1800	60	5_3
	21	F	500	1650	10	5_2
	22	M	505	1500	2	6_4
	23	F	475	1300	9	5_3
	24	F	450	1100	7	4_2
	25	M	565	2200	100	6_3
	26	M	510	1500	2	5_3
	27	M	475	1200	2	6_4
	28	M	500	1400	2	5_3
	29	M	540	2000	2	
	30	F	435	950	7	4_2

Table 12. (Continued)

No. of fishing	No. of specimen	Sex	F. L. (mm)	B.W. (g)	G.W. (g)	Age
17	1	M	625	3600	25	7_4
	2	F	570	2800	140	6_3
	3	F	450	1150	140	4_2
	4	M	400	700	2	5_1
	5	M	640	4000	60	6_3
	6	F	525	1850	20	5_2
	7	F	450	1150	13	4_2
	8	F	405	850	10	4_3
	9	F	540	2300	80	
	10	F	430	1000	8	
	11	M	455	1200	2	4_2
	12	M	575	2750	15	6_3
	13	F	370	600	10	4_3
	14	F	445	1100	12	
	15	F	480	1250	7	5_3
	16	F	565	2800	90	6_3
	17	F	370	600	7	4_3
	18	M	645	4000	60	6_3
	19	M	470	1200	2	5_3
	20	F	600	3200	130	6_3
	21	F	600	3000	120	5_2
	22	F	500	1700	20	5_2
	23	M	500	1450	2	5_3
	24	M	595	3100	25	5_2
	25	M	465	1300	15	4_2
	26	M	590	3200	50	6_3
	27	F	435	900	7	5_3
	28	M	400	850	30	4_3
	29	F	520	1950	90	5_3
	30	M	480	1300	2	6_3
18	1	M	465	1250	1	4_2
	2	F	500	2000	120	6_3
	3	M	470	1250	1	4_2
	4	F	625	3900	200	6_3
	5	F	555	2400	110	6_3
	6	M	550	2500	60	5_3
	7	M	500	1650	1	4_2
	8	M	495	1550	1	6_4
	9	M	480	1450	1	4_2
	10	M	645	4500	80	5_2
	11	F	455	1200	13	5_3
18	12	F	540	2050	17	6_3
	13	F	530	1800	65	5_3
	14	F	575	2400	30	
	15	F	450	1200	10	4_2
	16	F	510	1700	13	5_3
	17	F	570	2500	180	5_2
	18	F	485	1450	10	5_3
	19	F	475	1400	10	4_2
	20	F	455	1250	10	5_3
	21	M	500	1700	1	
	22	M	490	1600	1	5_3
	23	F	540	2300	60	6_1
	24	F	510	1700	70	5_3
	25	M	500	1750	1	
	26	M	485	1400	1	5_3
	27	M	525	1650	1	5_3
	28	M	500	1450	1	5_3
	29	M	460	1350	2	6_4
	30	F	530	1850	15	6_3
19	1	M	560	2500	40	5_3
	2	M	520	1950	2	4_2
	3	F	630	3500	150	6_3
	4	F	570	2800	100	5_3
	5	F	475	1400	10	4_2
	6	M	565	2400	50	5_3
	7	M	470	1500	2	4_2
	8	M	495	1600	1	5_3
	9	M	530	2150	2	4_2
	10	M	470	1550	60	5_3
	11	M	640	3500	60	6_3
	12	M	690	4000	90	6_3
	13	F	595	3100	140	6_3
	14	M	610	3300	40	6_3
	15	M	600	3100	80	6_3
	16	F	465	1300	10	4_2
	17	M	510	1500	1	4_2
	18	M	510	1700	1	
	19	F	600	2900	90	6_3
	20	M	430	1100	30	4_3
	21	M	550	2200	3	
	22	F	550	2200	40	

Table 12. (Continued)

No. of fishing	No. of specimen	Sex	F. L. (mm)	B.W. (g)	G.W. (g)	Age
19	23	F	490	1400	10	6$_4$
	24	F	550	2350	85	5$_3$
	25	F	600	2950	85	6$_3$
	26	M	560	3000	50	5$_3$
	27	F	600	3000	120	6$_3$
	28	M	640	3600	45	7$_4$
	29	F	590	3500	160	6$_3$
	30	M	570	2900	60	5$_3$
20	1	F	570	2300	130	6$_3$
	2	F	610	3500	140	6$_3$
	3	M	600	3500	70	
	4	F	580	3400	110	6$_3$
	5	M	610	3600	80	6$_3$
	6	M	630	4400	120	5$_2$
	7	M	655	4300	90	6$_3$
	8	M	570	3000	60	4$_2$
	9	F	600	3000	200	6$_3$
	10	F	600	2750	150	6$_3$
	11	F	530	2450	130	
	12	F	540	2600	120	5$_3$
	13	M	670	4700	60	6$_3$
	14	F	600	3300	130	6$_3$
	15	M	655	4100	90	6$_3$
	16	M	665	4100	100	6$_3$

4. King salmon, マスノスケ

No. of fishing	No. ot specimen	Sex	F. L. (mm)	B.W. (g)	G.W. (g)	Age
18	1	M	630	3600	5	4$_2$
	2	F	575	2400	10	4$_2$
19	1	F	600	2850	15	4$_2$
	2	F	615	2950	25	4$_2$
	3	F	750	5000	30	5$_2$

5. Silver salmon, ギンサケ

No. of fishing	No. of specimen	Sex	F. L. (mm)	B.W. (g)	G.W. (g)	Age
18	1	F	560	2500	100	4$_3$
	2	F	560	2350	110	4$_3$
	3	M	575	3000	120	4$_3$
	4	M	530	2100	60	3$_2$
	5	M	485	1550	80	3$_2$
	6	F	515	1800	100	4$_3$
	7	M	480	1600	70	3$_2$
19	1	F	490	1450	30	4$_3$
	2	M	555	2250	25	3$_2$

15. Data on Trawling
(トロール試験記録)

Head rope employed was 38 meters long (126 shaku).

Otter board was set close to the wing of the net, without hand rope. (オッターボードは袖網に直結)

Operation was supervised by the captain and deck officers, and all hands of crew and cadets were engaged in the work.

Biological characters of fish specimens taken by trawling were not measured.

Only number of fish was counted separately by species.

Recording of fish species caught by trawling was made by deck officers.

Fish species taken by trawling are:

Limanda aspera (PALLAS), Yellow-fin sole, ロスケガレイ
Lepidopsetta bilineata (AYRES), Rock sole, シュムシュガレイ
Pleuronectes pallasii STAINDACHNER, ツノガレイ
Atheresthes stomias (JORDAN & GILBERT), アラスカアブラガレイ
Hippoglossus stenolepis SCHMIDT, Halibut, オヒョウ
Clupea pallasii CUVIER & VALENCIENNES, Herring, ニシン
Paralithodes camtschatica TILESIUS, King crab, タラバガニ

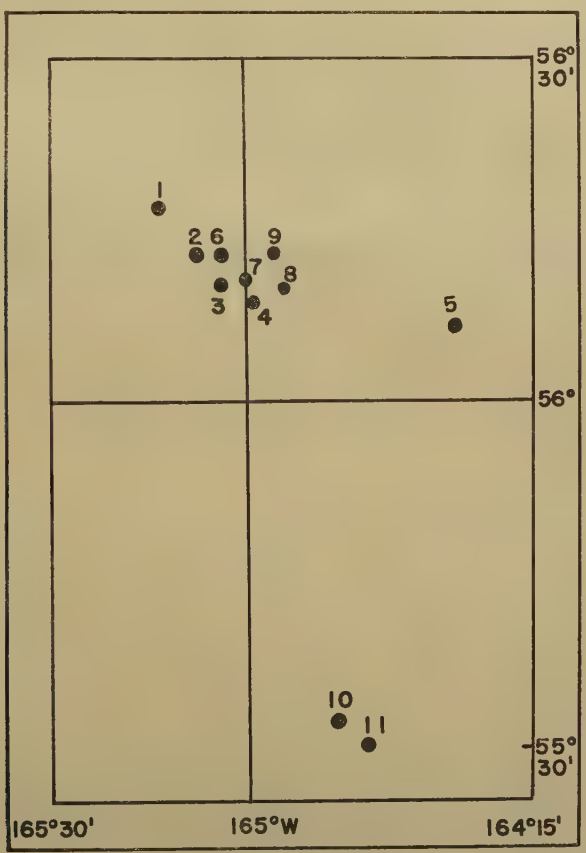

Fig. 5. Location of trawling in Bristol Bay in the "Oshoro Maru" cruise 44 to the Bering Sea in June-July 1959

Table 13. Data on trawl operation in Bristol Bay in the "Oshoro

No. of fishing	Date and time of net cast (Ship's time)	Position of net cast		Direction of towing	Duration of towing	Depth of sea bottom (m)
		Lat. (N)	Long. (W)			
1	July 4 07-45	56-17	165-14	90°	1^h-14^m	86
2	July 4 10-15	56-13	165-08	90°	1^h-00^m	100
3	July 4 13-00	56-10	165-04	90°	1^h-00^m	102
4	July 4 15-15	56-09	164-59	90°	1^h-15^m	88
5	July 5 06-56	56-07	164-27	130°	1^h-04^m	83
6	July 5 12-40	56-13	165-04	110°	1^h-00^m	91
7	July 5 15-00	56-11	165-00	110°	0^h-40^m	96
8	July 5 16-45	56-10	164-54	110°	0^h-30^m	94
9	July 5 18-55	56-13	164-56	100°	0^h-40^m	94
10	July 6 14-00	55-32	164-46	120°	1^h-00^m	103
11	July 6 16-00	55-30	164-41	130°	1^h-00^m	105

Table 14. Data on catch by trawling in Bristol Bay in the "Oshoro

No. of fishing	Catch in weight (Kg) or in		
	Limanda aspera (ロスケガレイ)	*Lepidopsetta bilineata* (シュムシュガレイ)	*Pleuronectes pallasii* (ツノガレイ)
1	48.7	75.0	105.8
2	21.7	45.0	23.6
3		56.2	22.5
4	49.5	71.2	25.6
5*			
6	63.7	101.3	138.8
7	45.0	31.9	92.6
8*			
9			10.5
10	14.6	45.0	
11		35.6	

Remarks: Besides the fish listed Alaska pollack (*Theragera chalcogramma*) were caught at every fishing as much as 2-3 tons.

Maru'' cruise 44 to the Bering Sea in June–July 1959

Quality of bottom	Temperature near sea bottom (C°)	Weather	Air temp. (C°)	Wind	
				Direction	Force
S. M.	0.0	m	6.4	W S W	5
		c	7.3	W S W	5
		m	7.8	W S W	4
S. M.	0.6	m	7.5	W S W	3
	0.4	o	6.1	West	3
S. M.	0.6	o	6.6	West	3
		o	7.0	West	3
		o	6.8	W S W	3
		o	6.3	West	3
S. M.	2.0	d	7.1	W N W	4
		o	6.8	W N W	5

Maru'' cruise 44 to the Bering Sea in June–August 1959

number of fish per a haul

Atheresthes stomias (アラスカアブラガレイ)	*Hippoglossus stenolepis* (オヒョウ)	*Clupea pallasii* (ニシン)	*Paralithodes camtschatica* (タラバガニ)
	6	180.0	150
	5	112.5	280
	5		205
	2		220
			289
	6		490
41.3			144
61.9	2		94
			97

* Almost exclusively Alaska pollack. All catches were let go.

16. Data on Eye-observations of Whales, Seales, Sea-birds, etc.
(鯨海獣海鳥等目視観察記録)

Objects in sight at sea are:

Puffins:

Lunda cirrhata (PALLAS), Tufted puffin, エトピリカ

Whales and other marine mammals:

Balaenoptera physalus (LINNE), Common rorqual, Finback, ナガスクジラ

Physeter catodon, LINNE, Sperm whale, Cachalot, マッコウクジラ

Whale (species unknown) クジラ

Otoes ursinus (LINNE), Northern fur seal, オットセイ

Dolphin, イルカ

Table 15. Sight records of whales, seals, sea-birds etc. in the "Oshoro Maru" cruise 44 to the Bering Sea in June–July 1959

Date	Hour (Ship's)	Position		Weather	Temperature (°C)		Objects in sight	Observer
		Latitude	Longitude		Air	Sea surface		
June 11	1000	45-03N	151-32E	o	3.9	4.1	2 tufted puffins	S. Saito
June 12	0800	47-01N	155-08E	f	2.8	3.4	2 sperm whales directed SW	S. Nakane
〃 〃	1700	47-20N	156-00E	o	3.8	4.1	1 sperm whale directed NW	〃
June 16	0900	48-00N	168-10E	o	4.9	5.0	2 whales	S. Abe
June 20	1313	52-52N	171-05E	o	6.2	5.9	1 whale	N. Masuda
June 22	1140	53-16N	177-28E	c	5.0	5.6	1 whale	S. Saito
〃 〃	1225	53-16N	177-40E	o	5.5	5.8	1 sperm whale	N. Masuda
〃 〃	1455	53-16N	178-16E	o	5.8	6.2	1 whale	〃
June 27	1213	48-25N	174-11W	c	6.9	7.5	3 small whales	〃
〃 〃	1520	48-29N	173-24W	c	7.1	7.8	6〜7 sperm whales and finbacks	S. Nakane
June 28	1830	50-16N	171-57W	o	6.3	7.3	3 whales	S. Abe
June 29	0530	50-30N	172-00W	o	5.9	7.1	1 sperm whale	S. Nakane
June 30	0700	53-52N	172-00W	o	6.3	7.1	5〜6 sperm whales and 1 northern fur seal	S. Abe
〃 〃	1330	54-21N	171-26W	o	6.6	7.8	2 northern fur seals	N. Masuda
〃 〃	1400	54-23N	171-19W	o	6.6	7.7	1 sperm whale directed S	〃
〃 〃	1515	54-28N	171-05W	o	7.0	7.1	1 northern fur seal	S. Nakane
〃 〃	1615	54-32N	170-50W	o	7.5	7.2	2 northern fur seals	〃
July 1	0935	54-56N	169-17W	o	6.2	7.3	1 finback	S. Saito
July 9	1455	57-01N	179-25W	f	5.7	5.7	1 large sperm whale	N. Masuda
July 17	1830	55-00N	164-20E	c	10.3	9.4	2 whales	S. Abe
July 20	1910	51-11N	161-23E	b	12.9	11.6	12 dolphins	〃

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11. Minoda, Takashi, 1958. Report from the "Oshoro Maru" on oceanographic and biological investigations in the Bering Sea and northern North Pacific in the summer of 1955. V. Observations on copepod community. *Ibid.* 8 (4), 253-263.
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15. Nishizawa, Satoshi, Naoichi Inoue and Yoshio Akiba, 1959. Trubidity distribution in the subarctic water of the North Pacific in the summer of 1957. *Rec. Oceanogr. Wks. Japan*, Spec. No. 3, 231-241.

II

THE "HOKUSEI MARU" CRUISE 6 (1-3) TO THE NORTH PACIFIC AND OKHOTSK SEA IN JUNE-AUGUST 1959

北星丸第6次(1—3)練習航海
昭和34年6月千島近海及び北太平洋調査
昭和34年7月オホーツク海調査
昭和34年8月オホーツク海調査
(一部水産庁委託調査)

1. Cruise Report
（航海報告）

First cruise (Cruise 6-1)		
Departure from Hakodate	June 2	（函館出港）
First hydrographic cast	June 5	（海洋観測開始）
First salmon gill-net set	June 5	（鮭鱒流網開始）
Passed Onnekotan Pass	June 14	（オンネコタン海峡通過）
Last salmon gill-net set	June 24	（鮭鱒流網終了）
Last hydrographic cast	June 26	（海洋観測終了）
Arrival at Hakodate	June 28	（函館入港）
Covered 3593 miles in total, 27 days at sea	（全航程3593海里，航海日数27日）	
Second cruise (Cruise 6-2)		
Departure from Hakodate	July 7	（函館出港）
First hydrographic cast	July 9	（海洋観測開始）
First salmon gill-net set	July 12	（鮭鱒流網開始）
Visited crab-cannery ship "Shiranesan Maru"	July 16	（蟹工船白根山丸見学）
Last salmon gill-net set	July 22	（鮭鱒流網終了）
Last hydrographic cast	July 24	（海洋観測終了）
Arrival at Hakodate	July 27	（函館入港）
Covered 2906 miles in total, 21 days at sea	（全航程2906海里，航海日数21日）	
Third cruise (Cruise 6-3)		
Departure from Hakodate	Aug. 6	（函館出港）
Arrival at Otaru	Aug. 7	（小樽入港）
Departure from Otaru	Aug. 7	（小樽出港）
First hydrographic cast	Aug. 9	（海洋観測開始）
First salmon gill-net set	Aug. 10	（鮭鱒流網開始）
Visited crab-cannery ship "Shiranesan Maru"	Aug. 13	（蟹工船白根山丸見学）
Last salmon gill-net set	Aug. 19	（鮭鱒流網終了）
Last hydrographic cast	Aug. 22	（海洋観測終了）
Arrival at Otaru	Aug. 24	（小樽入港）
Departure from Otaru	Aug. 24	（小樽出港）
Arrival at Hakodate	Aug. 25	（函館入港）
Covered 2463 miles in total, 20 days at sea	（全航程2463海里，航海日数20日）	

2. Vessel Personnel
(乗船者)

Captain: (船　長)	Seikichi Mishima	(三島清吉)
Crew: (乗組員)		
Chief Officer	Shoichi Yamamoto	(一等航海士　山本昭一)
Second Officer	Shingo Takenaga	(二等航海士　武長進午)
Third Officer	Yosuke Maita	(三等航海士　真板洋輔)
Junior Third Officer	Kenji Shimazaki	(次席三等航海士　島崎健二)
Chief Engineer	Yuhachi Yanagiya	(機関長　柳谷勇八)
First Engineer	Minoru Fujita	(一等機関士　藤田実)
Second Engineer	Sho Takashimizu	(二等機関士　高清水祥)
Wireless Operator	Shiro Noguchi	(無線通信士　野口四郎)
and 13 men		

Research men on the first cruise: (調査員)

Assistant Professor (Leader)	Motokazu Ueno (Fisheries)	(団長　助教授　上野元一　漁業)
Lecturer	Yoshio Akiba (Physical oceanography)	(講師　秋葉芳夫　海洋物理)
Officer of the Hokkaido Regional Fisheries Research Laboratory	Ki-ichi Miyaguchi (Biology)	(北海道区水産研究所　宮口喜一　生物)
Student in Advanced Course	Yasuo Miyayauchi (Fisheries)	(専攻科学生　宮谷内泰夫　漁業)
Undergraduate Student	Isao Yoshizaki (Biology)	(学生　吉崎勲　生物)

Research men on the second cruise: (調査員)

Assistant Professor (Leader)	Motokazu Ueno (Fisheries)	(団長　助教授　上野元一　漁業)
Research Assistant	Tatsuaki Maeda (Fisheries)	(助手　前田辰昭　漁業)
Officer of the Hokkaido Regional Fisheries Research Laboratory	Ki-ichi Miyaguchi (Biology)	(北海道区水産研究所　宮口喜一　生物)
Undergraduate Student	Satoshi Fujioka (Physical oceanography)	(学生　藤岡論　海洋物理)
Undergraduate Student	Takashi Suzuki (Physical oceanography)	(学生　鈴木昻　海洋物理)

Research men on the third cruise: (調査員)

Assistant Professor (Leader)	Motokazu Ueno (Fisheries)	(団長　助教授　上野元一　漁業)
Research Assistant	Tatsuaki Maeda (Fisheries)	(助手　前田辰昭　漁業)
Officer of the Hokkaido Regional Fisheries Research Laboratory	Ki-ichi Miyaguchi (Biology)	(北海道区水産研究所　宮口喜一　生物)
Undergraduate Student	Yasuhiko Hosogaya (Physical oceanography)	(学生　細萱安彦　海洋物理)

Undergraduate Student	Haruyoshi Kubo (Physical oceanography) (学生　久保治良　海洋物理)
No cadet on the first cruise:	
Cadets on the second cruise:	16 students of Undergraduate Course of Pelagic Fishery (遠洋漁業学科学生　16名)
Cadets on the third cruise:	13 students of Undergraduate Course of Pelagic Fishery (遠洋漁業学科学生　13名)

3. Specification of Hydrographic Stations
(海洋観測地点)

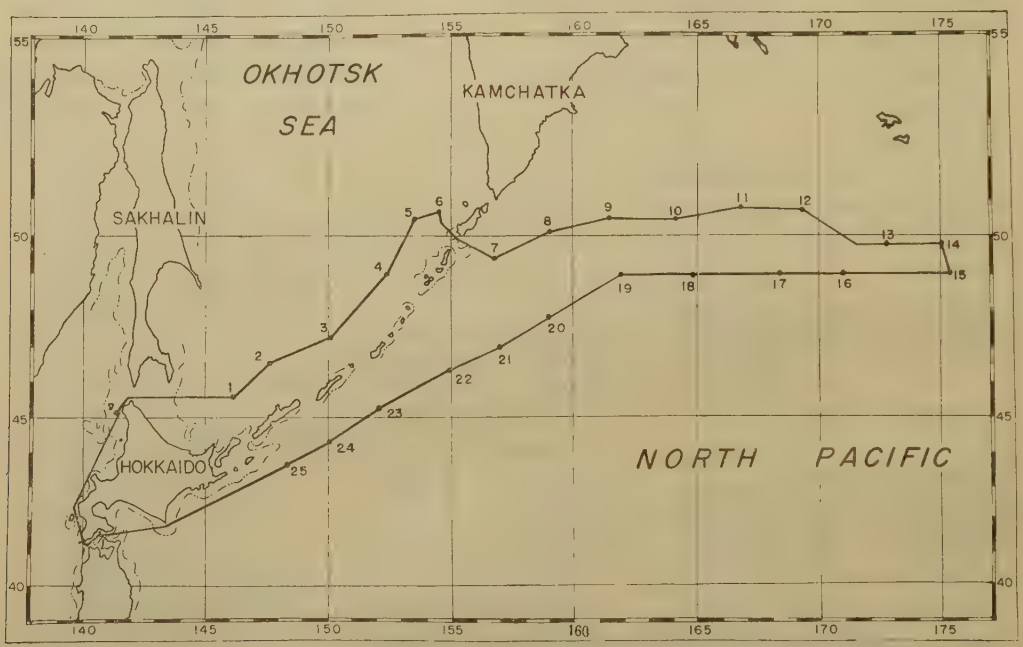

Fig. 6. Track and hydrographic stations in the "Hokusei Maru" cruise 6 (1) to Kurile Chain and to 175° E in the North Pacific in June 1959

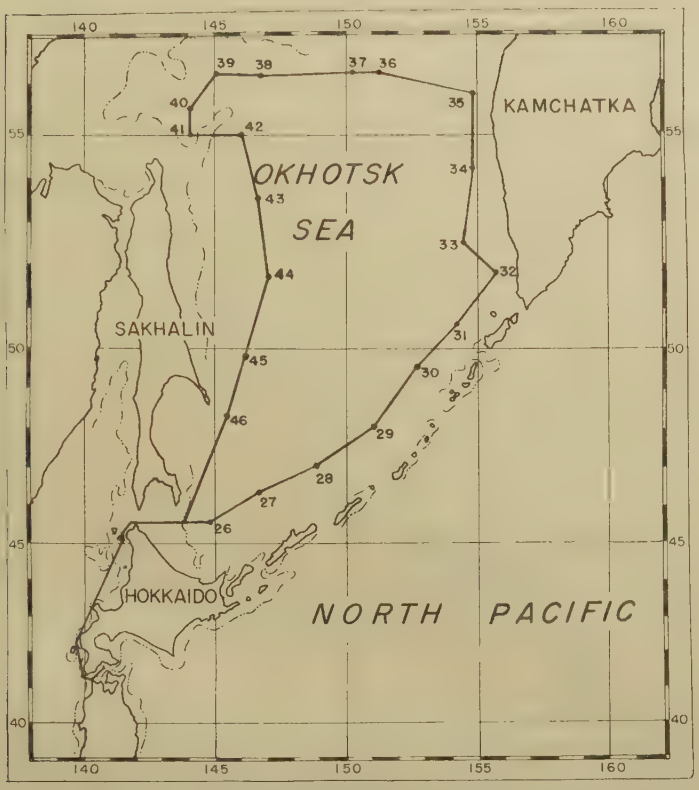

Fig. 7. Track and hydrographic stations in the "Hokusei Maru" cruise 6 (2) to the Okhotsk Sea in July 1959

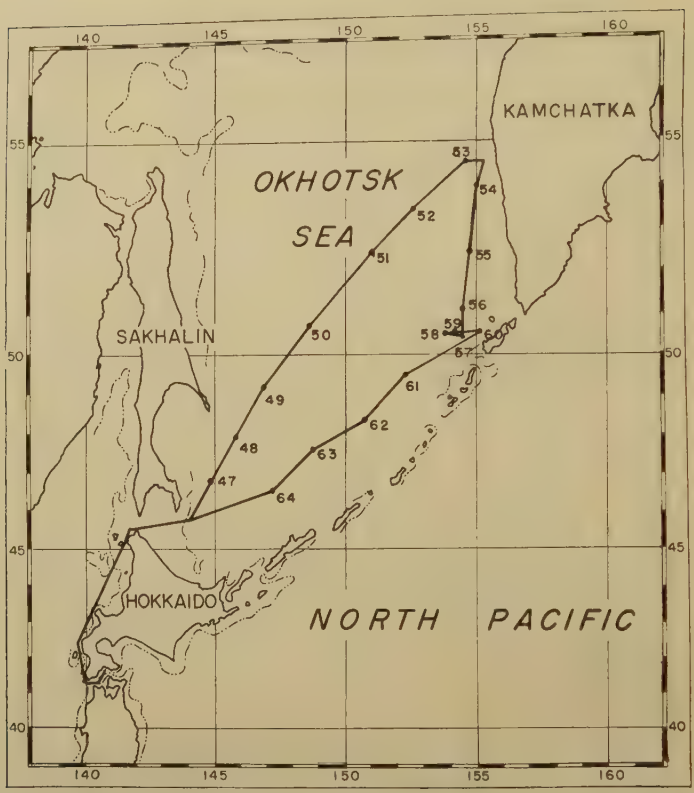

Fig. 8. Track and hydrographic stations in the "Hokusei Maru" cruise 6 (3) to the Okhotsk Sea in August 1959

Table 16. Hydrographic stations in the "Hokusei Maru" cruise 6 (1-3) to the North Pacific and Okhotsk Sea in June-August 1959

Cruise	No. of station	Ship's time		Greenwich mean time		Position		Maximum depth of cast (m)
		Date	Hour	Date	Hour	Latitude	Longitude	
6(1)	Ho 1	6～ 5	1604～1717	6～ 5	0704～0817	45°33′ N	146°05′ E	970
	Ho 2	6～ 6	1535～1643	6～ 6	0635～0743	46°31′ N	147°45′ E	891
	Ho 3	6～ 7	1530～1625	6～ 7	0630～0725	47°18′ N	150°06′ E	991
	Ho 4	6～ 9	1200～1259	6～ 9	0300～0359	48°55′ N	152°30′ E	949
	Ho 5	6～10	1600～1650	6～10	0700～0750	50°30′ N	153°28′ E	787
	Ho 6	6～11	1829～1930	6～11	0829～0930	50°44′ N	154°24′ E	786
	Ho 7	6～14	1800～1857	6～14	0800～0847	49°39′ N	156°44′ E	415
	Ho 8	6～15	0600～0710	6～14	2000～2110	50°07′ N	159°05′ E	715
	Ho 9	6～15	1745～1846	6～15	0745～0846	50°27′ N	161°26′ E	951
	Ho 10	6～16	0600～0658	6～15	2000～2056	50°27′ N	164°04′ E	942
	Ho 11	6～16	1755～1850	6～16	0755～0850	50°42′ N	166°31′ E	922
	Ho 12	6～17	0555～0655	6～16	1955～2055	50°42′ N	169°10′ E	822
	Ho 13	6～18	1757～1853	6～18	0757～0853	49°51′ N	172°45′ E	815
	Ho 14	6～19	0445～0535	6～18	1845～0935	49°51′ N	175°00′ E	921
	Ho 15	6～19	1230～1305	6～19	0230～0305	49°07′ N	175°15′ E	443
	Ho 16	6～20	0555～0702	6～19	1955～2102	49°07′ N	170°54′ E	930
	Ho 17	6～20	1800～1910	6～20	0800～0910	49°07′ N	168°11′ E	928
	Ho 18	6～21	1737～1818	6～21	0737～0818	49°00′ N	164°54′ E	778
	Ho 19	6～22	1752～1935	6～22	0752～0935	49°00′ N	161°47′ E	935
	Ho 20	6～23	1755～1937	6～23	0755～0937	47°54′ E	159°05′ E	541
	Ho 21	6～24	0601～0706	6～23	2001～2106	47°06′ N	157°02′ E	725
	Ho 22	6～24	1824～1918	6～24	0824～0918	46°22′ N	154°45′ E	589
	Ho 23	6～25	1800～1848	6～25	0900～0948	45°14′ N	152°05′ E	789
	Ho 24	6～26	0557～0645	6～25	2057～2145	44°22′ N	150°00′ E	590
	Ho 25	6～26	1617～1740	6～26	0717～0840	43°39′ N	148°17′ E	785
6(2)	Ho 26	7～ 9	1753～1857	7～ 9	0853～0957	45°36′ N	144°45′ E	595
	Ho 27	7～10	0600～0713	7～ 9	2100～2213	46°19′ N	146°52′ E	542
	Ho 28	7～10	1800～1850	7～10	0900～0950	47°08′ N	148°57′ E	590
	Ho 29	7～11	0600～0655	7～10	2100～2155	47°59′ N	150°58′ E	460

Table 16. (Continued)

Cruise	No. of station	Ship's time		Greenwich mean time		Position		Maximum depth of cast (m)
		Date	Hour	Date	Hour	Latitude	Longitude	
6(2)	Ho 30	7~12	0602~0656	7~11	2102~2156	49°32′ N	152°48′ E	577
	Ho 31	7~12	1839~1929	7~12	0939~1029	50°39′ N	154°23′ E	576
	Ho 32	7~13	1820~1934	7~13	0920~1034	51°45′ N	155°36′ E	270
	Ho 33	7~14	1232~1350	7~14	0332~0450	52°33′ N	154°25′ E	300
	Ho 34	7~15	1804~1839	7~15	0904~0939	54°15′ N	154°40′ E	150
	Ho 35	7~16	0600~0625	7~15	2100~2125	55°52′ N	154°52′ E	50
	Ho 36	7~17	0602~0655	7~16	2102~2155	56°20′ N	151°49′ E	440
	Ho 37	7~17	1837~1935	7~17	0937~1035	56°20′ N	150°04′ E	182
	Ho 38	7~18	1812~1853	7~18	0912~0953	56°15′ N	146°50′ E	253
	Ho 39	7~19	0910~0955	7~19	0010~0055	56°15′ N	145°00′ E	271
	Ho 40	7~19	1837~1940	7~19	0937~1040	55°39′ N	144°05′ E	527
	Ho 41	7~20	0922~1009	7~20	0022~0109	55°00′ N	144°05′ E	540
	Ho 42	7~20	1901~1945	7~20	1001~1045	55°00′ N	146°03′ E	552
	Ho 43	7~21	1805~1905	7~21	0905~1005	53°35′ N	146°56′ E	540
	Ho 44	7~22	1830~1933	7~22	0930~1033	51°41′ N	147°11′ E	595
	Ho 45	7~23	1800~1858	7~23	0900~0958	49°47′ N	146°17′ E	599
	Ho 46	7~24	0602~0657	7~23	2102~2157	48°19′ N	145°30′ E	559
6(3)	Ho 47	8~ 9	0600~0730	8~ 8	2100~2230	46°55′ N	144°54′ E	510
	Ho 48	8~ 9	1800~1854	8~ 9	0900~0954	47°56′ N	145°58′ E	595
	Ho 49	8~10	0601~0652	8~ 9	2101~2152	49°14′ N	147°14′ E	566
	Ho 50	8~10	1830~2010	8~10	0930~1110	50°43′ N	148°54′ E	598
	Ho 51	8~12	0535~0645	8~11	2035~2145	52°27′ N	151°02′ E	596
	Ho 52	8~12	1800~1856	8~12	0900~0956	53°25′ N	152°50′ E	586
	Ho 53	8~13	0600~0700	8~12	2100~2200	54°29′ N	154°40′ E	150
	Ho 54	8~13	1854~1950	8~13	0954~1050	54°00′ N	155°06′ E	75
	Ho 55	8~14	1844~1934	8~14	0944~1034	52°26′ N	154°50′ E	139
	Ho 56	8~15	1004~1058	8~15	0104~0158	51°06′ N	154°34′ E	516
	Ho 57	8~16	1545~1640	8~16	0645~0740	50°31′ N	154°30′ E	599
	Ho 58	8~17	1315~1425	8~17	0415~0525	50°29′ N	153°50′ E	464

Table 16. (Continued)

Cruise	No. of station	Ship's time		Greenwich mean time		Position		Maximum depth of cast (m)
		Date	Hour	Date	Hour	Latitude	Longitude	
	Ho 59	8～18	1605～1705	8～18	0705～0805	50°34′ N	154°09′ E	588
	Ho 60	8～19	1230～1320	8～19	0330～0420	50°36′ N	155°10′ E	599
	Ho 61	8～20	1801～1848	8～20	0901～0948	49°26′ N	152°35′ E	599
6(3)	Ho 62	8～21	0600～0705	8～20	2100～2205	48°22′ N	150°40′ E	572
	Ho 63	8～21	1802～1850	8～21	0902～0950	47°39′ N	148°56′ E	589
	Ho 64	8～22	0603～0647	8～21	2103～2147	46°36′ N	147°07′ E	569
	Ho 65	8～22	1737～1900	8～22	0837～1000	45°57′ N	144°57′ E	543

4. Items of Observations and Procedure at Sea
(調査項目及び海上作業)

Meteorological observations: (気象観測)

Every three-hour interval, covering the whole course. Data are not presented here in order to save the printing cost; they will gladly be supplied by direct communication upon request.

Hydrographic cast: (海洋観測)

At 65 stations throughout three cruises (6-1, 6-2, 6-3), covering depths from the surface to usually 500 meter depth.

Analysis of water samples: (試水分析)

Chlorinity was estimated by titration method after returning from the cruise.

Measurement of radio-activity of natural sea water: (自然海水の放射能測定)

Plankton sampling: (プランクトン採集)

Vertical hauls with a fine mesh net, 30 cm × 150 cm, XX 13, from approximately 100 meter depth, once at each hydrographic station.

Vertical hauls with a NORPAC standard net, 45 cm × 180 cm, GG 54, from approximately 150 meter depth, once at each hydrographic station.

Horizontal tow with three or four nets, 35 cm × 100 cm, GG 54, through different levels down to about 40 meters. Samplings were carried out on the occasion of observations on the sonic scattering layer. Sixteen samplings were performed.

Horizontal tow with a fish larva net, 130 cm × 450 cm, stramin, through the surface layer for ten minutes at low speed, at hydrographic stations and other few stations.

Fish larva sampling: (稚魚採集)

From the mixed plankton samples collected with a 130 cm fish larva net.

Analysis of fatty constituents of plankton organisms: (プランクトン油脂成分分析)

Materials were collected by surface tow with a 130 cm fish larva net.

Salmon gill net set: (鮭鱒流網)

Twenty-nine operations were carried out at different locations. Specimens were put to the measurement of biological characters, observations on maturity, sampling of scales for later examination.

5. Data on Temperature, Salinity and Computed Dynamic Depths
(温度塩分記録及びダイナミックデプス計算値)

Shallow casts in upper 150 meters were carried out with a manual winch and deep casts below 150 meters with an electric winch. In the shallow cast each Nansen bottle carried two protected reversing thermometers. In the deep cast each bottle carried an unprotected reversing thermometer with two protected thermometers.

The depths of observation in the shallow cast (at 150 meters or less) were calculated from measured wire angle; in the deep cast the depths were determined from wire angle and curves of wire length minus thermometric depth versus wire length.

The interpolated values of temperature and chlorinity were read from temperature-depth and chlorinity-depth curves respectively.

Double titration for chlorinity determination was carried out at the Hokkaido Regional Fisheries Research Laboratory in Yoichi.

Calculation of depths, interpolation of data, and computation of dynamic depth were made by Y. Akiba at the Oceanographic Laboratory of the University.

Table. 17. Data on temperature, salinity and computed dynamic depths in the "Hokusei Maru" cruise 6 (1-3) to the North Pacific and Okhotsk Sea in June-August 1959

Station Ho 1

Date June 5, 1959 Time 1604～1717 (S.M.T.) Latitude 45°33′N Longitude 146°05′E
Wind S 1 Weather b Air Temp. 10.0°C Sea S 1 Swell S 1 Col. 6 Tr. 10m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	Δst (cl/ton)	ΔD (dyn.m)
0	7.0	17.99	32.50	0	7.0	17.99	32.50	25.48	251	0
10	5.80	18.00	32.52	10	5.80	18.00	32.52	25.64	236	0.024
20	4.22	×	×	20	4.22	18.02	32.56	25.84	217	0.047
30	2.93	18.03	32.58	30	2.93	18.03	32.58	25.96	206	0.068
50	2.15	18.10	32.70	50	2.15	18.10	32.70	26.05	197	0.108
75	2.09	×	×	75	2.09	18.14	32.77	26.19	184	0.156
99	1.49	18.18	32.85	100	1.48	18.18	32.85	26.31	173	0.201
149	0.11	18.32	33.10	150	0.11	18.32	33.10	26.59	146	0.281
199	0.31	18.45	33.33	200	0.36	18.45	33.33	26.76	130	0.350
298	1.09	18.60	33.60	300	1.10	18.60	33.60	26.94	113	0.471
396	1.23	18.66	33.71	400	1.26	18.66	33.71	27.00	107	0.581
495	1.70	18.80	33.96	500	1.72	18.80	33.96	27.18	90	0.681
584	1.96	18.90	34.15	600	1.98	18.90	34.15	27.31	78	0.767
776	2.19	18.91	34.16	800	2.20	18.94	34.22	27.34	75	0.846
970	2.27	19.01	34.34							

Station Ho 2

Date June 6, 1959 Time 1535～1643 (S.M.T.) Latitude 46°31′N Longitude 147°45′E
Wind S 4 Weather b Air Temp. 7.0°C Sea S 5 Swell S 2 Col. 7 Tr. 7m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	Δst (cl/ton)	ΔD (dyn.m)
0	5.1	18.06	32.63	0	5.1	18.06	32.63	25.81	220	0
9	4.94	18.04	32.60	10	4.92	18.04	32.60	25.80	221	0.022
19	4.73	18.04	32.60	20	4.57	18.04	32.60	25.81	220	0.044
29	2.97	18.05	32.61	30	2.90	18.05	32.61	26.01	201	0.065
49	1.46	18.13	32.76	50	1.44	18.13	32.76	26.24	179	0.103
72	0.41	18.27	33.01	75	0.39	18.27	33.01	26.50	154	0.145
94	0.41	18.29	33.04	100	0.41	18.30	33.06	26.54	151	0.183
141	0.69	18.39	33.22	150	0.70	18.40	33.24	26.68	137	0.255
180	0.69	×	×	200	0.65	18.48	33.39	26.79	127	0.321
279	0.58	18.58	33.57	300	0.65	18.61	33.62	26.97	110	0.440
359	0.88	18.65	33.69	400	0.89	18.67	33.73	27.04	103	0.547
448	0.90	18.69	33.77	500	0.97	18.70	33.78	27.08	99	0.648
535	1.02	×	×	600	1.12	18.71	33.80	27.09	98	0.747
713	1.36	18.71	33.80	800	1.63	18.75	33.87	27.12	96	0.845
891	1.92	18.82	34.00							

Table 17. (Continued)

Station Ho 3

Date Jnne 7,1957 Time 1530～1625 (S.M.T.) Latitude 47°18′N Longitude 150°06′E
Wind WNW 1 Weather f Air Temp. 7.0°C Sea WNW 3 Swell WNW 1 Col. 7 Tr. 7m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	4.0	18.18	32.85	0	4.0	18.18	32.85	26.10	192	0
10	3.64	18.19	32.86	10	3.64	18.19	32.86	26.14	186	0.019
20	3.30	18.21	32.90	20	3.30	18.21	32.90	26.20	183	0.037
30	1.02	18.25	32.97	30	1.02	18.25	32.97	26.44	160	0.054
50	1.04	18.31	33.08	50	1.04	18.31	33.08	26.53	152	0.085
75	0.98	18.35	33.15	75	0.98	18.35	33.15	26.59	146	0.122
100	0.88	18.38	33.21	100	0.88	18.38	33.21	26.64	141	0.158
150	0.80	18.42	33.28	150	0.80	18.42	33.28	26.70	135	0.227
200	1.03	18.43	33.30	200	1.03	18.43	33.30	26.70	135	0.295
299	×	18.48	33.39	300	1.37	18.48	33.39	26.76	130	0.428
399	1.70	×	×	400	1.70	18.51	33.44	26.77	129	0.558
499	1.62	18.57	33.55	500	1.62	18.57	33.55	26.86	120	0.694
595	1.53	18.65	33.70	600	1.55	18.65	33.70	26.98	109	0.810
792	2.12	×	×	800	2.12	18.77	33.91	27.12	96	1.019
991	2.19	18.84	34.04							

Station Ho 4

Date June 9,1959 Time 1200～1300 (S.M.T.) Latitude 48°55′N Longitude 152°30′E
Wind NE 2 Weather b Air Temp. 2.8°C Sea NE 2 Swell NE 1 Col. 6 Tr. 11m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	3.8	18.39	33.22	0	3.8	18.39	33.22	26.43	163	0
10	3.59	18.39	33.22	10	3.59	18.39	33.22	26.44	160	0.016
20	3.24	18.39	33.22	20	3.24	18.39	33.22	26.48	153	0.032
30	1.80	18.40	33.24	30	1.80	18.40	33.24	26.60	145	0.047
50	1.46	18.43	33.30	50	1.46	18.43	33.30	26.68	137	0.075
75	1.26	18.43	33.43	75	1.26	18.43	33.43	26.69	136	0.109
99	1.06	18.44	33.31	100	1.06	18.44	33.31	26.71	135	0.143
149	1.12	18.45	33.33	150	1.13	18.45	33.33	26.72	134	0.210
190	1.23	18.48	33.39	200	1.23	18.48	33.39	26.75	131	0.276
285	1.19	18.49	33.40	300	1.26	18.49	33.40	26.76	130	0.407
378	1.37	18.49	33.40	400	1.38	18.49	33.40	26.76	130	0.537
472	1.45	18.51	33.44	500	1.48	18.52	33.46	26.80	126	0.665
567	1.54	18.56	33.53	600	1.68	18.58	33.57	26.88	118	0.788
760	1.74	18.70	33.78	800	1.79	18.73	33.84	27.08	99	1.010
949	2.24	18.86	34.07							

Table 17. (Continued)

Station Ho 5

Date June 10, 1959 Time 1600～1650 (S.M.T.) Latitude 50°30′N Longitude 153°28′E
Wind N 3 Weather b Air Temp. 3.8°C Sea N 2 Swell N 1 Col. 7 Tr. 8m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	3.1	18.33	33.12	0	3.1	18.33	33.12	26.39	165	0
10	3.28	18.31	33.08	10	3.28	18.31	33.08	26.35	169	0.017
20	3.25	18.31	33.08	20	3.25	18.31	33.08	26.35	169	0.034
30	2.36	×	×	30	2.36	18.32	33.10	26.45	159	0.050
50	1.20	18.34	33.13	50	1.20	18.34	33.13	26.54	151	0.081
74	0.97	18.37	33.19	75	0.98	18.37	33.19	26.62	143	0.118
98	1.23	18.39	33.22	100	1.23	18.39	33.22	26.63	142	0.154
148	1.05	18.43	33.30	150	1.05	18.43	33.30	26.70	135	0.223
197	1.10	18.44	33.31	200	1.10	18.44	33.31	26.71	135	0.291
292	1.24	18.50	33.42	300	1.28	18.50	33.42	26.78	128	0.423
389	1.46	18.54	33.50	400	1.46	18.55	33.51	26.84	122	0.548
484	1.50	18.64	33.68	500	1.54	18.66	33.71	26.98	109	0.665
590	1.71	18.73	33.84	600	1.72	18.73	33.84	27.08	99	0.771
787	2.15	18.84	34.04							

Station Ho 6

Date June 11, 1959 Time 1830～1930 (S.M.T.) Latitude 50°44′N Longitude 154°24′E
Wind NW 3 Weather b Air Temp. 4.0°C Sea NW 2 Swell SE 1 Col. 7 Tr. 7m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	4.1	18.25	32.97	0	4.1	18.25	32.97	26.18	185	0
10	3.87	18.27	33.01	10	3.87	18.27	33.01	26.24	179	0.018
20	3.40	18.27	33.01	20	3.40	18.27	33.01	26.28	175	0.036
30	2.08	×	×	30	2.08	18.28	33.03	26.41	163	0.053
50	1.43	18.29	33.04	50	1.43	18.29	33.04	26.48	156	0.085
75	1.40	18.31	33.08	75	1.40	18.31	33.08	26.50	154	0.124
100	1.36	18.35	33.15	100	1.36	18.35	33.15	26.56	149	0.162
150	0.74	18.34	33.13	150	0.74	18.34	33.13	26.59	146	0.236
194	0.89	18.40	33.24	200	0.90	18.40	33.24	26.65	140	0.307
290	1.00	18.46	33.35	300	1.04	18.47	33.37	26.76	130	0.442
387	1.35	18.52	33.46	400	1.36	18.53	33.48	26.82	124	0.569
491	1.47	18.58	33.57	500	1.48	18.59	33.59	26.90	117	0.690
588	1.61	18.65	33.70	600	1.63	18.66	33.71	26.99	108	0.804
786	2.19	18.84	34.04							

Table 17. (Continued)

Station Ho 7

Date June 14, 1959 Time 1800～1900 (S.M.T.) Latitude 49°39′N Longitude 156°44′E
Wind W 6 Weather b Air Temp. 5.0°C Sea W 5 Swell W 3 Col. 6 Tr. 10m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	4.9	18.24	32.95	0	4.9	18.24	32.95	26.09	193	0
9	4.97	18.23	32.94	10	4.93	18.23	32.94	26.08	194	0.019
18	4.55	18.23	32.94	20	4.00	18.23	32.94	26.16	187	0.038
28	2.39	18.23	32.94	30	2.09	18.23	32.94	26.34	169	0.056
46	1.23	18.34	33.13	50	1.20	18.36	33.17	26.52	153	0.088
72	1.07	18.45	33.33	75	1.06	18.45	33.33	26.66	139	0.125
96	1.02	×	×	100	1.02	18.57	33.55	26.84	121	0.158
144	1.06	×	×	150	1.10	18.74	33.86	27.14	94	0.212
173	1.39	18.80	33.96	200	2.36	18.83	34.02	27.18	90	0.259
273	3.29	18.83	34.02	300	3.39	18.84	34.04	27.25	83	0.347
332	3.47	18.86	34.07	400	3.46	18.88	34.11	27.31	78	0.430
415	3.45	×	×							

Station Ho 8

Date June 15, 1959 Time 0600～0700 (S.M.T.) Latitude 50°07′N Longitude 159°05′E
Wind WNW 5 Weather bc Air Temp. 6.0°C Sea WNW 4 Swell × Col. 5 Tr. 12m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	4.6	18.19	32.86	0	4.6	18.19	32.86	26.05	197	0
9	4.52	18.19	32.86	10	4.52	18.19	32.86	26.06	196	0.020
18	4.53	18.20	32.88	20	4.52	18.20	32.88	26.07	195	0.040
27	×	18.19	32.86	30	4.47	18.19	32.86	26.06	196	0.060
45	4.39	18.19	32.86	50	2.22	18.21	32.90	26.30	173	0.097
62	0.87	18.33	33.12	75	0.90	18.33	33.12	26.56	149	0.137
83	0.91	18.33	33.12	100	0.91	18.35	33.17	26.59	146	0.174
124	0.92	18.37	33.19	150	0.29	18.37	33.19	26.62	143	0.246
165	0.93	18.37	33.19	200	1.60	18.43	33.30	26.66	139	0.316
245	2.41	18.52	33.46	300	3.19	18.60	33.60	26.78	128	0.450
328	3.43	×	×	400	3.53	18.82	34.00	27.06	101	0.567
358	3.55	18.67	33.73	500	3.36	18.93	34.20	27.23	85	0.663
430	3.50	18.88	34.11	600	3.16	18.94	34.22	27.27	81	0.750
575	3.21	18.93	34.20							
715	2.97	18.98	34.23							

Table 17. (Continued)

Station Ho 9

Date June 15, 1959 Time 1745~1845 (S.M.T.) Latitude 50°27′N Longitude 161°26′E
Wind SW 3 Weather bc Air Temp. 7.0°C Sea SW 2 Swell × Col. 4 Tr. 15m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	5.5	18.32	33.10	0	5.5	18.32	33.10	26.13	190	0
10	5.24	18.31	33.09	10	5.24	18.31	33.09	26.15	188	0.019
20	4.91	18.32	33.10	20	4.91	18.32	33.10	26.19	184	0.038
30	4.52	18.33	33.12	30	4.52	18.33	33.12	26.25	178	0.056
50	2.55	18.33	33.12	50	2.55	18.33	33.13	26.45	159	0.090
75	1.65	18.34	33.13	75	1.65	18.34	33.14	26.53	152	0.129
99	1.35	18.37	33.19	100	1.38	18.37	33.19	26.59	146	0.166
149	3.16	18.67	33.73	150	3.16	18.67	33.73	26.75	131	0.236
199	3.42	18.74	33.86	200	3.42	18.74	33.86	26.96	111	0.297
295	3.47	18.84	34.04	300	3.46	18.84	34.04	27.10	98	0.403
394	3.33	18.91	34.16	400	3.33	18.91	34.16	27.21	87	0.498
493	3.22	18.94	34.22	500	3.20	18.95	34.24	27.28	80	0.584
571	2.81	18.97	34.27	600	2.81	18.98	34.29	27.36	73	0.664
761	2.81	19.03	34.38	800	2.72	19.04	34.40	27.45	64	0.810
951	2.26	19.04	34.40							

Station Ho 10

Date June 16, 1959 Time 0600~0700 (S.M.T.) Latitude 50°27′N Longitude 164°04′E
Wind S 3 Weather bc Air Temp. 6.0°C Sea S 2 Swell SSW 2 Col. 5 Tr. 10m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	5.7	18.29	33.04	0	5.7	18.29	33.04	26.07	195	0
10	5.55	18.29	33.04	10	5.55	18.29	33.04	26.09	193	0.019
20	5.55	18.29	33.04	20	5.55	18.29	33.04	26.09	193	0.038
29	5.15	18.29	33.04	30	5.00	18.29	33.04	26.14	189	0.057
49	3.64	18.31	33.08	50	3.56	18.31	33.08	26.32	172	0.093
74	2.40	18.41	33.26	75	2.40	18.41	33.26	26.57	148	0.133
98	2.13	18.41	33.26	100	1.12	18.41	33.26	26.66	139	0.169
147	2.04	18.41	33.26	150	1.10	18.42	33.28	26.68	137	0.238
186	4.11	18.66	33.71	200	4.10	18.68	33.75	26.79	127	0.305
279	3.77	18.76	33.90	300	3.74	18.78	33.93	26.97	110	0.426
371	3.76	18.86	34.07	400	3.71	18.85	34.05	27.08	99	0.534
455	3.66	18.88	34.11	500	3.62	18.91	34.16	27.18	90	0.632
565	3.51	18.95	34.25	600	3.43	18.98	34.29	27.29	80	0.721
754	3.07	19.06	34.43	800	3.00	19.08	34.47	27.48	62	0.872
942	2.89	19.11	34.52							

Table 17. (Continued)

Station Ho 11

Date June 16, 1959 Time 1755~1850 (S.M.T.) Latitude 50°42′N Longitude 166°31′E
Wind SW 3 Weather r Air Temp. 6.0°C Sea SW 2 Swell SW 2 Col. 5 Tr. 10m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	5.5	18.25	32.97	0	5.5	18.25	32.97	26.03	199	0
10	5.40	18.26	32.99	10	5.40	18.26	32.99	26.06	196	0.020
20	5.36	18.26	32.99	20	5.36	18.26	32.99	26.07	195	0.040
30	5.30	28.26	32.99	30	5.30	18.26	32.99	26.08	194	0.059
49	4.31	18.26	32.99	50	4.25	18.26	32.99	26.18	185	0.097
73	3.38	18.29	33.04	75	3.36	18.29	33.04	26.31	173	0.142
97	3.20	18.34	33.13	100	3.21	18.35	33.15	26.41	163	0.184
146	3.69	18.43	33.30	150	3.72	18.44	33.32	26.50	154	0.264
187	4.22	18.56	33.53	200	4.24	18.59	33.59	26.65	140	0.338
282	4.13	18.73	33.84	300	4.10	18.76	33.89	26.92	115	0.488
376	3.90	18.82	34.00	400	3.85	18.84	34.04	27.05	102	0.620
470	3.78	18.86	34.07	500	3.76	18.87	34.09	27.11	97	0.725
553	3.64	18.87	34.09	600	3.53	18.89	34.13	27.16	92	0.826
738	3.29	19.10	34.51	800	3.22	19.11	34.52	27.50	60	0.988
922	3.09	19.11	34.52							

Station Ho 12

Date June 17, 1959 Time 0555~0655 (S.M.T.) Latitude 50°42′N Longitude 169°10′E
Wind SW 4 Weather r Air Temp. 6.0°C Sea SW 3 Swell SW 2 Col. 5 Tr. 7m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	5.6	18.25	32.97	0	5.6	18.25	32.97	26.02	200	0
10	5.45	18.25	32.97	10	5.45	18.25	32.97	26.03	199	0.020
20	5.45	18.23	32.94	20	5.45	18.23	32.94	26.01	201	0.040
30	5.36	18.24	32.96	30	5.36	18.24	32.96	26.04	198	0.060
49	4.20	18.26	32.99	50	4.10	18.26	32.99	26.20	183	0.098
70	2.71	18.31	33.08	75	2.57	18.32	33.10	26.43	161	0.141
93	2.31	18.36	33.17	100	2.30	18.40	33.24	26.57	148	0.180
139	2.98	18.52	33.46	150	3.20	18.65	33.69	26.84	122	0.248
160	3.35	18.65	33.69	200	3.52	18.73	33.84	26.93	114	0.308
240	3.56	18.78	33.93	300	3.52	18.84	34.04	27.09	98	0.417
316	3.50	×	×	400	3.45	18.90	34.15	27.18	90	0.514
398	3.45	18.90	34.15	500	3.52	18.92	34.18	27.20	88	0.606
492	3.54	18.90	34.15	600	3.28	18.94	34.22	27.26	82	0.695
658	3.10	18.95	34.24	800	2.92	18.97	34.27	27.33	76	0.862
822	2.91	×	×							

Table 17. (Continued)

Station Ho 13

Date June 18, 1959 Time 1757~1853 (S.M.T.) Latitude 49°51′N Longitude 172°45′E
Wind S 3 Weather r Air Temp. 6.0°C Sea × Swell SW 3 Col. 6 Tr. 10m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (C°)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	5.6	18.16	32.81	0	5.6	18.16	32.81	25.89	212	0
10	5.56	18.15	32.79	10	5.56	18.15	32.79	25.88	213	0.021
20	5.63	18.16	32.81	20	5.63	18.16	32.81	25.89	212	0.042
30	5.54	18.16	32.81	30	5.54	18.16	32.81	25.91	211	0.063
50	5.58	18.25	32.97	50	5.58	18.25	32.97	26.02	200	0.104
73	3.81	18.29	33.04	75	3.80	18.30	33.06	26.29	174	0.151
97	3.72	18.38	33.21	100	3.72	18.40	33.24	26.44	160	0.193
146	3.77	18.67	33.73	150	3.78	18.68	33.75	26.83	123	0.265
189	3.94	18.79	33.95	200	3.94	18.79	33.95	26.97	110	0.324
283	3.88	18.80	33.96	300	3.86	18.86	34.07	27.08	99	0.431
378	3.70	18.89	34.13	400	3.66	18.90	34.15	27.16	92	0.530
472	3.50	18.90	34.15	500	3.40	18.96	34.25	27.27	81	0.620
486	3.45	18.95	34.24	600	3.23	18.99	34.24	27.33	76	0.702
648	3.10	18.99	34.31	800	2.98	19.00	34.33	27.38	71	0.858
815	2.97	19.01	34.34							

Station Ho 14

Date June 19, 1959 Time 0440~0600 (S.M.T.) Latitude 49°51′N Longitude 175°00′E
Wind SE 3 Weather r Air Temp. 6.0°C Sea × Swell SE 3 Col. 6 Tr. 12m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	5.5	18.21	32.90	0	5.5	18.21	32.90	25.98	204	0
10	5.34	18.22	32.92	10	5.34	18.22	32.92	26.01	201	0.020
20	5.39	18.24	32.95	20	5.39	18.24	32.95	26.03	199	0.040
30	5.33	18.24	32.95	30	5.33	18.24	32.95	26.04	198	0.060
49	5.07	18.24	32.95	50	5.00	18.24	32.95	26.08	194	0.099
74	3.53	18.29	33.04	75	3.53	18.29	33.04	26.30	173	0.145
98	3.43	18.37	33.19	100	3.44	18.38	33.21	26.44	160	0.187
148	3.70	18.64	33.68	150	3.70	18.64	33.68	26.78	128	0.260
188	3.84	18.64	33.68	200	3.85	18.68	33.75	26.83	123	0.324
282	3.81	18.81	33.98	300	3.80	18.83	34.02	27.04	103	0.440
376	3.67	18.88	34.11	400	3.63	18.90	34.15	27.17	91	0.540
471	3.49	18.90	34.15	500	3.44	18.95	34.24	27.25	83	0.630
543	3.41	18.97	34.27	600	3.29	19.00	34.33	27.35	74	0.712
739	2.97	19.02	34.36	800	2.86	19.03	34.38	27.43	66	0.861
921	2.74	19.04	34.40							

Table 17. (Continued)

Station Ho 15

Date June 19, 1959 Time 1230～1330 (S.M.T.) Latitude 49°07′N Longitude 175°15′E
Wind SW 5 Weather r Air Temp. 6.0°C Sea × Swell SW 3 Col. 6 Tr. 8m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	5.5	18.20	32.88	0	5.5	18.20	32.88	25.96	206	0
9	5.44	18.20	32.88	10	5.44	18.20	32.88	25.97	205	0.021
19	5.43	18.19	32.86	20	5.44	18.19	32.86	25.96	206	0.042
28	5.46	18.19	32.86	30	5.44	18.19	32.86	25.96	206	0.063
46	4.43	18.25	32.97	50	4.13	18.30	33.06	26.25	178	0.102
66	3.57	×	×	75	3.63	18.43	33.30	26.49	155	0.144
88	3.94	18.49	33.40	100	4.11	18.58	33.57	26.65	140	0.181
132	4.25	18.77	33.78	150	4.17	18.71	33.80	26.83	123	0.248
177	3.88	18.74	33.86	200	3.81	18.77	33.91	26.96	111	0.308
266	3.78	18.83	34.02	300	3.65	18.85	34.05	27.09	98	0.415
355	3.22	18.88	34.11	400	3.34	18.91	34.16	27.21	87	0.510
443	3.59	18.93	34.20							

Station Ho 16

Date June 20, 1959 Time 0555～0702 (S.M.T.) Latitude 49°07′N Longitude 170°54′E
Wind SE 3 Weather f Air Temp. 6.0°C Sea SE 1 Swell SE 1 Col. 6 Tr. 11m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	6.4	18.15	32.79	0	6.4	18.15	32.79	25.78	223	0
10	5.92	18.15	32.79	10	5.92	18.15	32.79	25.84	217	0.022
20	5.56	18.20	32.88	20	5.56	18.20	32.88	25.96	206	0.043
30	5.51	18.21	32.90	30	5.51	18.21	32.90	25.98	204	0.064
50	×	18.24	32.95	50	5.43	18.24	32.95	26.03	199	0.104
73	5.36	18.29	33.04	75	5.33	18.29	33.04	26.11	192	0.153
97	4.52	18.34	33.13	100	4.45	18.38	33.21	26.34	170	0.199
146	3.81	18.76	33.90	150	3.80	18.77	33.91	26.96	111	0.270
183	3.84	18.80	33.96	200	3.83	18.84	34.04	27.06	101	0.324
275	3.61	18.90	34.15	300	3.57	18.90	34.15	27.18	90	0.422
367	3.54	18.91	34.16	400	3.54	18.94	34.22	27.23	85	0.513
459	3.43	18.95	34.24	500	3.36	18.96	34.25	27.28	80	0.599
551	3.32	18.96	34.25	600	3.25	18.98	34.29	27.32	77	0.681
738	3.02	19.02	34.36	800	2.92	19.02	34.36	27.41	68	0.835
930	2.74	19.05	34.42							

Table 17. (Continued)

Station Ho 17

Date June 20,1959 Time 1800～1900 (S.M.T.) Latitude 49°07′N Longitude 168°11′E
Wind NNE 3 Weather r Air Temp. 6.0°C Sea NNE 3 Swell NNE 2 Col. 6 Tr. 6m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	5.8	18.16	32.81	0	5.8	18.16	32.81	25.91	211	0
10	5.68	18.21	32.90	10	5.68	18.21	32.90	25.96	206	0.021
20	5.60	18.20	32.88	20	5.60	18.20	32.88	25.95	207	0.042
30	5.31	18.21	32.90	30	5.31	18.21	32.90	26.00	202	0.062
49	4.81	18.22	32.92	50	4.74	18.22	32.92	26.08	194	0.102
74	3.23	18.31	33.08	75	3.17	18.31	33.08	26.47	157	0.146
97	2.28	18.34	33.13	100	2.28	18.35	33.15	26.50	154	0.185
139	4.09	18.58	33.57	150	4.00	18.62	33.64	26.72	134	0.258
185	3.80	18.70	33.78	200	3.80	18.72	33.82	26.89	117	0.322
278	3.81	18.80	33.96	300	3.80	18.83	34.02	27.04	103	0.435
371	3.76	18.88	34.11	400	3.72	18.90	34.15	27.16	92	0.536
465	3.62	18.90	34.15	500	3.59	18.96	34.25	27.25	83	0.627
558	3.50	18.98	34.29	600	3.42	19.00	34.33	27.33	76	0.711
743	3.15	19.03	34.38	800	3.05	19.03	34.38	27.41	68	0.864
928	2.81	×	×							

Station Ho 18

Date June 21,1959 Time 1737～1818 (S.M.T.) Latitude 49°00′N Longitude 164°54′E
Wind NE 2 Weather b Air Temp. 6.0°C Sea NE 3 Swell ESE 2 Col. 5 Tr. 8m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	5.9	18.24	32.95	0	5.9	18.24	32.95	25.98	204	0
10	5.80	18.24	32.95	10	5.80	18.24	32.95	25.99	203	0.020
20	5.77	18.24	32.95	20	5.77	18.24	32.95	25.99	203	0.040
30	5.63	18.24	32.95	30	5.63	18.24	32.95	26.00	202	0.060
49	3.41	18.28	33.03	50	3.40	18.28	33.03	26.30	173	0.098
74	2.61	18.30	33.06	75	2.60	18.30	33.06	26.40	164	0.140
98	2.38	18.32	33.10	100	2.40	18.33	33.12	26.46	158	0.181
147	2.94	18.65	33.70	150	2.96	18.63	33.66	26.84	122	0.252
196	3.15	18.71	33.80	200	3.16	18.72	33.82	26.95	112	0.311
293	3.32	18.81	33.98	300	3.32	18.81	33.98	27.06	101	0.419
388	3.32	18.88	34.11	400	3.32	18.87	34.09	27.15	93	0.518
485	3.30	18.91	34.16	500	3.30	18.92	34.18	27.22	86	0.610
582	3.16	18.95	34.24	600	3.12	18.96	34.25	27.30	79	0.696
778	2.83	19.00	34.33							

Table 17. (Continued)

Station Ho 19

Date June 22, 1959 Time 1755~1837 (S.M.T.) Latitude 49°00′N Longitude 161°47′E
Wind ENE 3 Weather b Air Temp. 6.0°C Sea ENE 3 Swell E 2 Col. 5 Tr. 13m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	5.5	18.29	33.04	0	5.5	18.29	33.04	26.08	194	0
10	5.36	18.29	33.04	10	5.36	18.29	33.04	26.11	192	0.019
20	5.35	18.29	33.04	20	5.35	18.29	33.04	26.11	192	0.038
29	5.38	18.29	33.04	30	5.30	18.29	33.04	26.12	191	0.057
49	2.66	18.31	33.08	50	2.66	18.31	33.08	26.41	163	0.093
74	2.23	18.31	33.08	75	2.15	18.31	33.08	26.44	160	0.134
98	1.50	18.33	33.12	100	1.50	18.34	33.14	26.54	151	0.173
144	2.64	18.60	33.60	150	2.79	18.62	33.64	26.85	121	0.242
192	3.32	18.75	33.87	200	3.34	18.74	33.86	26.97	110	0.300
289	3.38	18.82	34.00	300	3.38	18.82	34.00	27.08	99	0.406
385	3.35	18.87	34.09	400	3.34	18.88	34.11	27.17	91	0.503
467	3.31	18.91	34.16	500	3.30	18.92	34.18	27.23	85	0.594
561	3.24	18.96	34.25	600	3.16	18.98	34.29	27.33	76	0.678
747	2.84	19.00	34.33	800	2.78	19.02	34.36	27.42	67	0.830
935	2.65	19.06	34.43							

Station Ho 20

Date June 23, 1959 Time 1755~1937 (S.M.T.) Latitude 47°54′N Longitude 159°05′E
Wind ENE 4 Weather b Air Temp. 5.0°C Sea ENE 2 Swell ENE 1 Col. 7 Tr. 5m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	5.2	18.28	33.03	0	5.2	18.28	33.03	26.11	192	0
10	5.13	×	×	10	5.13	18.28	33.03	26.12	191	0.019
20	5.13	18.27	33.01	20	5.13	18.27	33.01	26.11	192	0.038
30	4.57	18.27	33.01	30	4.57	18.27	33.01	26.16	187	0.057
49	1.78	×	×	50	1.76	18.28	33.03	26.44	160	0.092
74	1.11	18.29	33.04	75	1.07	18.29	33.04	26.50	154	0.131
98	0.83	18.29	33.04	100	0.84	18.29	33.04	26.51	154	0.170
148	1.25	18.38	33.21	150	1.26	18.38	33.21	26.61	144	0.245
197	1.67	18.43	33.30	200	1.70	18.43	33.30	26.65	140	0.316
271	2.56	18.54	33.50	300	2.85	18.58	33.57	26.78	128	0.451
361	3.29	18.67	33.73	400	3.42	18.72	33.82	26.92	115	0.576
452	3.54	18.77	33.91	500	3.54	18.81	33.98	27.04	103	0.688
541	3.55	18.83	34.02							

Table 17. (Continued)

Station Ho 21

Date June 24, 1959 Time 0601~0706 (S.M.T.) Latitude 47°06′N Longitude 157°02′E
Wind ENE 3 Weather b Air Temp. 5.0°C Sea ENE 2 Swell ENE 1 Col. 6 Tr. 14m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	5.4	18.29	33.04	0	5.4	18.29	33.04	26.10	192	0
10	5.34	18.29	33.04	10	5.34	18.29	33.04	26.11	192	0.019
20	5.31	18.29	33.04	20	5.31	18.29	33.04	26.12	191	0.038
30	4.62	18.31	33.08	30	4.62	18.31	33.08	26.21	182	0.057
50	3.95	18.32	33.10	50	3.95	18.32	33.10	26.30	173	0.093
75	2.07	18.32	33.10	75	2.07	18.32	33.10	26.47	157	0.135
99	1.38	18.33	33.12	100	1.38	18.33	33.12	26.54	151	0.174
145	1.97	18.48	33.39	150	2.10	18.54	33.50	26.79	127	0.244
192	3.28	18.69	33.77	200	3.33	18.72	33.82	26.94	113	0.304
289	3.41	18.82	34.00	300	3.40	18.83	34.02	27.08	99	0.411
385	(3.31)	18.89	34.13	400	3.29	18.90	34.15	27.20	88	0.507
454	3.28	18.93	34.20	500	3.26	18.95	34.24	27.28	80	0.594
545	(3.17)	18.97	34.27	600	3.08	18.98	34.29	27.34	65	0.670
725	2.87	19.01	34.34							

Station Ho 22

Date June 24, 1959 Time 1824~1918 (S.M.T.) Latitude 46°22′N Longitude 154°45′E
Wind E 2 Weather b Air Temp. 6.0°C Sea 0 Swell NE 1 Col. 5 Tr. 9m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	5.7	18.30	33.06	0	5.7	18.30	33.06	26.08	194	0
10	5.40	18.30	33.06	10	5.40	18.30	33.06	26.13	190	0.019
20	5.02	18.30	33.06	20	5.02	18.30	33.06	26.16	187	0.038
30	4.67	18.31	33.08	30	4.67	18.31	33.08	26.21	182	0.056
50	2.87	18.31	33.08	50	2.87	18.31	33.08	26.39	165	0.091
75	1.72	18.32	33.10	75	1.72	18.32	33.10	26.50	154	0.131
100	1.17	18.35	33.15	100	1.17	18.35	33.15	26.58	147	0.169
150	2.14	18.53	33.48	150	2.14	18.53	33.48	26.77	129	0.238
197	3.20	18.72	33.82	200	3.20	18.72	33.82	26.94	113	0.299
295	(3.30)	18.80	33.96	300	3.30	18.80	33.96	27.05	102	0.408
394	(3.30)	18.87	34.09	400	3.30	18.87	34.09	27.15	93	0.508
491	3.23	18.92	34.18	500	3.22	18.92	34.18	27.23	85	0.600
589	3.12	18.95	34.24							

Table 17. (Continued)

Station Ho 23

Date June 25, 1959 Time 1800～1848 (S.M.T.) Latitude 45°14′N Longitude 152°05′E
Wind S 1 Weather b Air Temp. 8.0°C Sea 0 Swell E 1 Col. 5 Tr. 8m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	7.2	18.28	33.03	0	7.2	18.28	33.03	25.87	214	0
10	6.26	18.28	33.03	10	6.26	18.28	33.03	25.98	204	0.021
20	6.53	18.28	33.03	20	6.53	18.28	33.03	25.94	208	0.042
30	4.97	18.30	33.06	30	4.97	18.30	33.06	26.17	186	0.062
50	2.37	18.33	33.12	50	2.37	18.33	33.12	26.44	160	0.097
75	×	18.34	33.13	75	1.90	18.34	33.13	26.51	154	0.137
100	1.72	18.38	33.21	100	1.72	18.38	33.21	26.58	147	0.175
150	1.69	18.46	33.35	150	1.69	18.46	33.35	26.70	135	0.246
200	2.25	18.56	33.53	200	2.25	18.56	33.53	26.80	126	0.311
296	2.20	18.66	33.71	300	2.20	18.74	33.86	27.06	101	0.426
395	×	18.82	34.00	400	2.20	18.82	34.00	27.18	90	0.523
493	2.27	18.82	34.00	500	2.34	18.88	34.11	27.26	82	0.611
592	(2.89)	18.91	34.16	600	2.90	18.92	34.18	27.27	81	0.696
789	2.91	19.00	34.33							

Station Ho 24

Date June 26, 1959 Time 0557～0645 (S.M.T.) Latitude 44°22′N Longitude 150°00′E
Wind S 2 Weather r Air Temp. 9.0°C Sea 0 Swell E 1 Col. 5 Tr. 12m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	8.9	18.26	32.99	0	8.9	18.26	32.99	25.57	243	0
10	8.65	18.28	33.03	10	8.65	18.28	33.03	25.65	235	0.024
20	7.39	18.33	33.12	20	7.39	18.33	33.12	25.90	211	0.046
30	5.64	×	×	30	5.64	18.34	33.13	26.14	189	0.066
50	1.71	18.35	33.15	50	1.71	18.35	33.15	26.54	151	0.100
75	1.66	18.36	33.17	75	1.66	18.36	33.17	26.55	150	0.138
100	1.58	18.38	33.21	100	1.58	18.38	33.21	26.61	144	0.175
150	2.45	18.52	33.46	150	2.45	18.52	33.46	26.73	133	0.245
200	2.40	18.57	33.55	200	2.40	18.57	33.55	26.80	126	0.310
298	×	18.70	33.78	300	2.82	18.70	33.78	26.95	112	0.431
397	3.12	18.84	34.04	400	3.12	18.83	34.02	27.11	97	0.538
492	3.12	18.92	34.18	500	3.13	18.92	34.18	27.24	84	0.631
590	3.17	18.91	34.16							

Table 17. (Continued)

Station Ho 25

Date June 26, 1959 Time 1617~1740 (S.M.T.) Latitude 43°39′N Longitude 148°17′E
Wind ENE 1 Weather f Air Temp. 11.0°C Sea 0 Swell NE 1 Col. 4 Tr. 11m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	10.6	18.31	33.08	0	10.6	18.31	33.08	25.39	260	0
10	9.82	18.31	33.08	10	9.82	18.31	33.08	25.50	249	0.025
20	8.33	×	×	20	8.33	18.31	33.08	25.74	227	0.049
30	4.72	18.31	33.08	30	4.72	18.31	33.08	26.21	182	0.069
50	2.48	18.31	33.08	50	2.48	18.31	33.08	26.42	162	0.104
75	1.24	18.35	33.15	75	1.24	18.35	33.15	26.57	148	0.143
100	0.99	18.37	33.19	100	0.99	18.37	33.19	26.61	144	0.180
147	1.73	18.49	33.40	150	1.78	18.50	33.42	26.74	132	0.249
196	2.26	18.59	33.59	200	2.28	18.60	33.60	26.86	120	0.312
294	2.66	18.73	33.84	300	2.67	18.74	33.86	27.01	106	0.427
392	×	18.83	34.02	400	2.94	18.84	34.04	27.15	93	0.529
490	3.12	18.92	34.18	500	3.13	18.93	34.20	27.25	83	0.620
589	×	18.95	34.24	600	3.00	18.97	34.27	27.33	76	0.703
785	2.88	18.99	34.31							

Station Ho 26

Date July 9, 1959 Time 1753~1857 (S.M.T.) Latitude 45°36′N Longitude 144°45′E
Wind SSW 3 Weather bc Air Temp. 12.0°C Sea × Swell SE 3 Col. 5 Tr. 12m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	10.8	17.86	32.27	0	10.8	17.86	32.27	24.70	326	0
10	10.62	17.84	32.23	10	10.62	17.84	32.23	24.70	326	0.033
20	2.20	17.98	32.48	20	2.20	17.98	32.48	25.98	204	0.060
30	−0.81	18.10	32.70	30	−0.81	18.10	32.70	26.33	171	0.079
50	−1.20	18.25	32.97	50	−0.20	18.25	32.97	26.50	154	0.112
75	−1.29	18.35	33.15	75	−1.29	18.35	33.15	26.69	136	0.148
100	−1.36	18.35	33.15	100	−1.36	18.35	33.15	26.69	136	0.182
150	−0.70	18.43	33.30	150	−0.70	18.43	33.30	26.78	128	0.248
198	0.23	18.47	33.39	200	0.24	18.47	33.39	26.80	126	0.311
297	0.71	18.64	33.68	300	0.72	18.64	33.68	27.01	106	0.427
397	0.91	18.79	33.95	400	0.91	18.79	33.95	27.22	86	0.524
496	0.96	18.76	33.89	500	0.98	18.76	33.89	27.16	92	0.613
595	1.45	18.72	33.82							

Table 17. (Continued)

Station Ho 27

Date July 10, 1959 Time 0600～0713 (S.M.T.) Latitude 46°19′N Longitude 146°52′E
Wind S 2 Weather bc Air Temp. 13.0°C Sea × Swell ESE 1 Col. 5 Tr. 11m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	11.8	17.91	32.36	0	11.8	17.91	32.36	24.60	335	0
10	11.34	17.95	32.43	10	11.34	17.95	32.43	24.73	323	0.033
20	8.25	18.44	33.31	20	8.25	18.44	33.31	25.94	208	0.060
30	6.47	18.43	33.30	30	6.47	18.43	33.30	26.18	185	0.080
49	5.45	×	×	50	5.14	18.44	33.31	26.35	169	0.116
74	3.65	×	×	75	3.60	18.44	33.31	26.50	154	0.157
97	2.62	18.44	33.31	100	2.50	18.44	33.31	26.61	144	0.195
142	0.78	18.41	33.26	150	0.70	18.41	33.26	26.71	135	0.265
182	0.62	18.41	33.26	200	0.74	18.43	33.30	26.74	132	0.332
272	1.56	18.51	33.44	300	1.47	18.53	33.48	26.81	125	0.461
362	1.16	18.54	33.50	400	1.24	18.58	33.57	26.90	117	0.582
452	1.37	18.61	33.62	500	1.33	18.62	33.64	26.95	112	0.697
542	1.24	18.64	33.68							

Station Ho 28

Date July 10, 1959 Time 1800～1850 (S.M.T.) Latitude 47°08′N Longitude 148°57′E
Wind S 3 Weather bc Air Temp. 11.5°C Sea S 2 Swell ESE 1 Col. 4 Tr. 12m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	10.8	18.00	32.52	0	10.8	18.00	32.52	24.90	307	0
10	9.92	18.00	32.52	10	9.92	18.00	32.52	25.05	292	0.030
20	8.12	18.01	32.54	20	8.12	18.01	32.54	25.34	265	0.058
30	6.55	18.15	32.79	30	6.55	18.15	32.79	25.76	225	0.083
50	2.17	18.27	33.01	50	2.17	18.27	33.01	26.39	165	0.122
75	0.21	18.36	33.17	75	0.21	18.36	33.17	26.64	141	0.160
100	−0.41	18.41	33.26	100	−0.41	18.41	33.26	26.74	132	0.194
150	0.10	18.42	33.28	150	0.10	18.42	33.28	26.73	133	0.260
200	0.33	18.45	33.33	200	0.33	18.45	33.33	26.78	128	0.325
299	0.98	18.54	33.50	300	0.98	18.54	33.50	26.86	120	0.449
394	0.05	18.60	33.60	400	1.08	18.61	33.62	26.94	113	0.566
492	1.29	18.65	33.69	500	1.30	18.66	33.71	27.00	107	0.676
590	1.50	18.70	33.78							

Table 17. (Continued)

Station Ho 29

Date July 11, 1959 Time 0600～0655 (S.M.T.) Latitude 47°59′N Longitude 150°58′E
Wind ESE 3 Weather r Air Temp. 9.5°C Sea ESE 2 Swell SE 1 Col. 5 Tr. 9m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	9.5	18.05	32.61	0	9.4	18.05	32.61	25.19	279	0
10	9.25	18.00	32.52	10	9.25	18.00	32.50	25.17	281	0.028
19	8.43	18.02	32.56	20	8.24	18.03	32.58	25.36	263	0.055
29	6.47	18.14	32.77	30	6.40	18.14	32.77	25.77	224	0.079
48	3.72	18.23	32.94	50	3.40	18.23	32.94	26.22	181	0.120
65	1.89	×	×	75	1.80	18.28	33.03	26.47	157	0.162
87	1.49	18.29	33.04	100	0.78	18.30	33.06	26.53	152	0.201
115	0.55	18.32	33.10	150	0.46	18.35	33.15	26.61	144	0.275
154	0.46	18.39	33.22	200	0.65	18.43	33.30	26.72	134	0.344
230	0.77	18.45	33.33	300	0.93	18.51	33.44	26.82	124	0.473
296	0.91	×	×	400	1.36	18.58	33.57	26.89	117	0.594
376	1.36	18.56	33.53							
460	1.35	18.66	33.71							

Station Ho 30

Date July 12, 1959 Time 0602～0656 (S.M.T.) Latitude 49°32′N Longitude 152°48′E
Wind S 4 Weather f Air Temp. 7.0°C Sea S 3 Swell S 3 Col. 7 Tr. 10m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	6.2	18.20	32.88	0	6.2	18.20	32.88	25.88	213	0
10	6.23	18.20	32.88	10	6.23	18.20	32.88	25.88	213	0.021
20	6.24	×	×	20	6.24	18.20	32.88	25.88	213	0.042
30	5.48	18.20	32.88	30	5.48	18.20	32.88	25.97	205	0.063
49	1.38	18.38	33.21	50	1.38	18.38	33.21	26.60	145	0.098
74	1.20	18.40	33.24	75	1.21	18.40	33.24	26.64	141	0.134
98	1.43	18.45	33.33	100	1.43	18.45	33.33	26.70	135	0.169
149	1.51	18.55	33.51	150	1.51	18.54	33.49	26.82	124	0.234
198	1.64	×	×	200	1.64	18.59	33.59	26.89	117	0.295
297	1.43	18.64	33.68	300	1.43	18.65	33.69	26.99	108	0.409
384	1.47	×	×	400	1.50	18.70	33.78	27.04	103	0.516
482	1.60	×	×	500	1.63	18.73	33.84	27.09	98	0.618
577	1.74	18.77	33.91							

Table 17. (Continued)

Station Ho 31

Date July 12, 1959 Time 1839～1929 (S.M.T.) Latitude 50°39′N Longitude 154°23′E
Wind S 4 Weather c Air Temp. 6.5°C Sea S 3 Swell S 2 Col. × Tr. 8m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	6.4	18.13	32.76	0	6.4	18.13	32.76	25.75	226	0
10	6.09	18.21	32.90	10	6.09	18.21	32.90	25.91	211	0.022
20	4.73	18.26	32.99	20	4.73	18.26	32.99	26.13	190	0.042
30	×	×	×	30	3.40	18.27	33.01	26.29	174	0.060
50	×	18.30	33.06	50	1.74	18.30	33.06	26.47	157	0.093
74	0.85	×	×	75	0.84	18.36	33.17	26.61	144	0.122
98	0.69	×	×	100	0.68	18.39	33.22	26.67	138	0.157
149	1.06	18.44	33.31	150	1.06	18.44	33.31	26.71	135	0.225
198	0.97	18.45	33.33	200	0.97	18.47	33.67	26.76	130	0.292
297	0.94	18.51	33.44	300	0.97	18.52	33.46	26.82	124	0.420
383	1.05	18.55	33.51	400	1.05	18.55	33.51	26.86	120	0.542
480	0.97	18.60	33.60	500	1.01	18.63	33.66	26.98	109	0.657
576	1.79	18.86	34.07							

Station Ho 32

Date July 13, 1959 Time 1820～1934 (S.M.T.) Latitude 51°45′N Longitude 155°36′E
Wind SE 3 Weather c Air Temp. 7.0°C Sea SE 2 Swell SE 2 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	6.4	18.21	32.90	0	6.4	18.21	32.90	25.87	214	0
10	5.93	18.21	32.90	10	5.93	18.21	32.90	25.92	210	0.021
20	5.97	18.21	32.90	20	5.97	18.21	32.90	25.91	211	0.042
30	5.57	18.21	32.92	30	5.57	18.22	32.92	25.99	203	0.063
50	5.56	18.22	32.92	50	5.56	18.22	32.92	25.99	203	0.104
75	1.00	×	×	75	1.00	18.24	32.95	26.43	161	0.150
100	0.25	18.26	32.99	100	0.25	18.26	32.99	26.50	154	0.189
(120)	0.14	18.36	33.17	150	0.02	18.38	33.21	26.69	136	0.261
(170)	0.02	18.45	33.33	200	0.20	18.47	33.37	26.80	126	0.326
(270)	1.30	18.50	33.42							

Table 17. (Continued)

Station Ho 33

Date July 14, 1959 Time 1232～1350 (S.M.T.) Latitude 52°23′N Longitude 154°25′E
Wind SE 1 Weather o Air Temp. 9.0°C Sea SE 1 Swell SE 1 Col. 5 Tr. 11m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	7.2	18.23	32.94	0	7.2	18.23	32.94	25.79	222	0
10	6.91	18.21	32.90	10	6.91	18.21	32.90	25.80	221	0.022
20	6.78	×	×	20	6.78	18.21	32.90	25.81	220	0.044
30	5.46	×	×	30	5.46	18.21	32.90	25.99	203	0.065
50	0.81	18.23	32.94	50	0.81	18.23	32.94	26.42	162	0.102
75	0.47	×	×	75	0.47	18.25	32.97	26.47	157	0.142
100	0.17	18.29	33.04	100	0.17	18.30	33.06	26.56	149	0.180
150	−0.04	18.45	33.33	150	−0.04	18.45	33.33	26.79	127	0.249
200	0.39	×	×	200	0.39	18.53	33.48	26.88	118	0.310
300	1.26	18.62	33.64	300	1.26	18.62	33.64	26.95	112	0.425

Station Ho 34

Date July 15, 1959 Time 1804～1839 (S.M.T.) Latitude 54°15′N Longitude 154°40′E
Wind W 3 Weather f Air Temp. 7.4°C Sea W 2 Swell W 3 Col. 5 Tr. 11m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	8.2	18.07	32.65	0	8.2	18.07	32.65	25.41	258	0
10	8.19	18.06	32.63	10	8.19	18.06	32.63	25.41	258	0.026
20	5.15	18.12	32.74	20	5.15	18.12	32.74	25.89	212	0.045
30	0.57	18.12	32.74	30	0.57	18.12	32.74	26.28	175	0.059
50	−0.63	18.14	32.77	50	−0.63	18.14	32.77	26.37	167	0.093
75	−0.88	18.17	32.85	75	−0.88	18.17	32.85	26.41	163	0.134
100	−0.72	18.23	32.94	100	−0.72	18.23	32.94	26.50	154	0.174
150	−1.10	18.29	33.04	150	−1.10	18.29	33.04	26.60	145	0.249

Table 17. (Continued)

Station Ho 35

Date July 16,1959 Time 0600～0655 (S.M.T.) Latitude 55°52′N Longitude 154°52′E
Wind SSW 2 Weather f Air Temp. 10.0°C Sea SSW 2 Swell W 1 Col. 6 Tr. 10m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	10.8	17.56	31.73	0	10.8	17.56	31.73	24.29	365	0
10	10.45	17.72	32.02	10	10.45	17.72	32.02	24.57	338	0.035
20	6.66	18.00	32.52	20	6.66	18.00	32.52	25.54	246	0.064
30	0.70	18.17	32.83	30	0.70	18.17	32.83	26.34	170	0.085
50	−0.63	18.16	32.81	50	−0.63	18.16	32.81	26.39	165	0.119

Station Ho 36

Date July 17,1959 Time 0602～0655 (S.M.T.) Latitude 56°20′N Longitude 151°49′E
Wind SW 4 Weather f Air Temp. 8.5°C Sea SW 3 Swell SW 2 Col. 4 Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	8.7	18.03	32.57	0	8.7	18.03	32.57	25.29	269	0
10	8.81	18.00	32.52	10	8.81	18.00	32.52	25.23	275	0.027
19	8.76	18.01	32.54	20	7.70	18.01	32.54	25.41	258	0.054
29	2.86	18.11	32.72	30	2.72	18.11	32.72	26.11	192	0.077
49	0.50	18.24	32.95	50	0.43	18.24	32.95	26.46	158	0.112
73	−0.57	18.22	32.92	75	−0.62	18.23	32.94	26.49	155	0.151
97	−0.85	18.32	33.10	100	−0.86	18.32	33.10	26.63	142	0.188
144	−0.72	18.37	33.19	150	−0.42	18.38	33.21	26.70	135	0.257
191	0.64	18.45	33.33	200	0.70	18.46	33.35	26.76	130	0.323
(244)	0.90	18.49	33.40	300	1.10	18.53	33.48	26.84	122	0.449
(343)	1.14	18.56	33.53	400	0.95	18.57	33.55	26.90	117	0.569
(440)	0.72	18.58	33.57							

Table 17. (Continued)

Station Ho 37

Date July 17, 1959 Time 1837~1935 (S.M.T.) Latitude 56°20′N Longitude 150°04′E
Wind SW 4 Weather bc Air Temp. 10.0°C Sea SW 3 Swell SW 2 Col. 6 Tr. 10m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	9.3	18.05	32.61	0	9.3	18.05	32.61	25.22	276	0
10	9.40	18.13	32.76	10	9.40	18.13	32.76	25.32	267	0.027
19	9.35	18.14	32.77	20	9.30	18.15	32.79	25.36	263	0.054
29	4.75	18.27	33.01	30	4.40	18.27	33.01	26.18	185	0.076
48	−1.32	18.31	33.08	50	−1.44	18.32	33.10	26.64	141	0.109
72	−1.75	18.40	33.24	75	−1.72	18.43	33.30	26.82	124	0.142
94	−1.30	×	×	100	−1.14	18.34	33.13	26.67	138	0.175
136	−0.24	18.46	33.35	150	−0.23	18.46	33.35	26.81	125	0.241
182	−0.22	18.44	33.31	200						

Station Ho 38

Date July 18, 1959 Time 1812~1853 (S.M.T.) Latitude 56°15′N Longitude 146°50′E
Wind S 5 Weather f Air Temp. 8.4°C Sea S 4 Swell S 3 Col. 6 Tr. 6m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	8.2	18.06	32.63	0	8.2	18.06	32.63	25.41	258	0
10	8.32	×	×	10	8.32	18.07	32.65	25.40	259	0.026
19	5.59	18.07	32.65	20	4.80	18.08	32.67	25.87	214	0.050
29	−1.18	18.20	32.88	30	−1.22	18.20	32.88	26.46	158	0.069
48	−1.72	18.33	33.12	50	−1.72	18.33	33.12	26.67	138	0.099
66	−1.74	18.35	33.15	75	−1.74	18.35	33.15	26.70	135	0.133
88	−1.73	18.36	33.17	100	−1.68	18.36	33.17	26.71	135	0.167
(117)	−1.42	18.37	33.19	150	0.32	18.43	33.30	26.74	132	0.233
(162)	0.62	18.49	33.40	200	0.62	18.50	33.42	26.82	124	0.297
(253)	0.61	18.50	33.42							

Table 17. (Continued)

Station Ho 39

Date July 19, 1959 Time 0910~0955 (S.M.T.) Latitude 56°15′N Longitude 145°00′E
Wind S 4 Weather f Air Temp. 8.0°C Sea S 3 Swell S 3 Col. 6 Tr. 9m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	7.8	17.80	32.16	0	7.8	17.80	32.16	25.10	287	0
10	7.80	17.80	32.16	10	7.80	17.80	32.16	25.10	287	0.029
19	3.32	18.15	32.79	20	3.24	18.15	32.79	26.12	191	0.053
29	1.70	18.17	32.83	30	1.50	18.17	32.83	26.29	174	0.071
48	−1.25	18.26	32.99	50	−1.20	18.27	33.01	26.56	149	0.103
69	−0.92	18.34	33.13	75	−0.84	18.34	33.13	26.66	139	0.139
90	−0.69	18.35	33.15	100	−0.67	18.39	33.22	26.72	134	0.173
130	−0.76	×	×	150	−0.48	18.45	33.33	26.80	126	0.238
175	−0.01	×	×	200	0.20	18.49	33.40	26.84	122	0.300
271	0.82	18.54	33.50							

Station Ho 40

Date July 19, 1959 Time 1837~1940 (S.M.T.) Latitude 55°39′N Longitude 145°05′E
Wind S 2 Weather b Air Temp. 11.0°C Sea S 3 Swell S 3 Col. 6 Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	8.9	16.42	29.67	0	8.9	16.42	29.67	22.99	489	0
10	8.39	16.71	30.19	10	8.39	16.71	30.19	23.47	443	0.047
20	5.23	17.07	30.84	20	5.23	17.07	30.84	24.39	355	0.087
29	2.23	18.11	32.72	30	1.80	18.11	32.72	26.18	185	0.114
49	−0.03	18.17	32.83	50	−0.07	18.17	32.83	26.38	166	0.149
71	−0.66	18.23	32.94	75	−0.76	18.24	32.96	26.51	154	0.189
94	−0.98	18.30	33.06	100	−0.98	18.31	33.08	26.62	143	0.226
144	−0.54	18.45	33.33	150	−0.46	18.44	33.31	26.79	127	0.293
188	0.02	×	×	200	0.15	18.51	33.44	26.86	120	0.354
282	0.74	18.55	33.51	300	0.80	18.55	33.51	26.88	118	0.473
340	0.89	×	×	400	0.92	18.61	33.62	26.96	111	0.588
433	0.97	18.65	33.69	500	1.23	18.72	33.82	27.10	98	0.693
527	1.37	18.75	33.87							

Table 17. (Continued)

Station Ho 41

Date July 20, 1959 Time 0922～1009 (S.M.T.) Latitude 55°00′N Longitude 145°05′E
Wind S 1 Weather f Air Temp. 9.5°C Sea S 1 Swell S 1 Col. 5 Tr. 10m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	9.8	16.12	29.13	0	9.8	16.12	29.13	22.43	542	0
10	9.09	16.15	29.18	10	9.09	16.15	29.18	22.58	528	0.054
19	5.23	17.27	31.20	20	5.20	17.32	31.29	24.74	322	0.097
29	2.68	17.76	32.09	30	2.66	17.77	32.11	25.63	237	0.125
49	1.90	18.06	32.63	50	1.72	18.07	32.65	26.13	190	0.168
70	−0.49	18.24	32.95	75	−0.60	18.24	32.95	26.50	154	0.211
92	−0.78	18.25	32.97	100	−0.82	18.26	32.99	26.54	151	0.249
141	−0.82	18.33	33.12	150	−0.70	18.34	33.13	26.65	140	0.322
188	−0.27	18.39	33.22	200	−0.14	18.40	33.24	26.72	134	0.390
282	0.74	18.47	33.37	300	0.79	18.50	33.42	26.81	125	0.519
355	0.82	18.53	33.48	400	0.89	18.55	33.51	26.87	119	0.641
448	×	×	×	500						
540	1.53	18.71	33.80							

Station Ho 42

Date July 20, 1959 Time 1901～1945 (S.M.T.) Latitude 55°00′N Longitude 146°03′E
Wind SSW 2 Weather b Air Temp. 11.0°C Sea SSW 1 Swell SSW 1 Col. 5 Tr. 6m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	6.6	18.08	32.22	0	6.6	18.08	32.22	25.65	235	0
10	4.40	18.16	32.81	10	4.40	18.16	32.81	26.03	199	0.022
19	2.80	18.14	32.77	20	2.76	18.14	32.77	26.15	188	0.041
29	2.42	18.19	32.86	30	2.37	18.19	32.86	26.26	177	0.059
45	1.14	18.25	32.97	50	1.06	18.25	32.97	26.44	160	0.093
69	0.93	18.25	32.97	75	0.80	18.26	32.99	26.47	157	0.133
90	0.23	18.31	33.08	100	−0.50	18.31	33.08	26.60	145	0.171
138	−1.30	18.31	33.08	150	−0.88	18.34	33.13	26.66	139	0.242
185	0.26	18.40	33.24	200	0.50	18.42	33.28	26.71	135	0.311
278	1.05	18.49	33.40	300	1.05	18.51	33.44	26.81	125	0.441
365	1.06	18.62	33.64	400	1.10	18.60	33.60	26.93	114	0.561
458	1.21	18.65	33.69	500	1.22	18.70	33.78	27.06	101	0.669
552	1.23	18.75	33.87							

Table 17. (Continued)

Station Ho 43

Date July 21,1959 Time 1805～1905 (S.M.T.) Latitude 53°35′N Longitude 146°56′E
Wind S 4 Weather f Air Temp. 9.5°C Sea S 4 Swell S 2 Col. 4 Tr.10m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σt (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	8.9	17.84	32.23	0	8.9	17.84	32.23	24.99	298	0
9	8.90	17.84	32.23	10	8.80	17.84	32.23	25.01	296	0.030
18	7.36	17.84	32.23	20	6.20	17.92	32.38	25.48	251	0.057
28	1.31	18.05	32.61	30	0.62	18.06	32.63	26.19	184	0.079
47	-1.47	18.17	32.83	50	-1.52	18.17	32.83	26.43	161	0.114
70	-1.66	18.17	32.83	75	-1.65	18.22	32.92	26.50	154	0.153
87	-1.63	18.25	32.97	100	-1.56	18.28	33.03	26.59	146	0.190
138	-1.04	18.36	33.17	150	-0.66	18.39	33.22	26.75	131	0.259
185	0.16	18.46	33.35	200	0.30	18.47	33.37	26.80	126	0.323
278	0.65	18.54	33.50	300	0.70	18.56	33.53	26.90	117	0.445
353	0.80	18.60	33.60	400	0.83	18.62	33.64	26.98	109	0.559
445	0.88	18.63	33.66	500	1.10	18.67	33.73	27.03	104	0.666
540	1.30	18.70	33.78							

Station Ho 44

Date July 22,1959 Time 1830～1933 (S.M.T.) Latitude 51°41′N Longitude 147°11′E
Wind NW 1 Weather b Air Temp. 11.2°C Sea NW 1 Swell NW 1 Col. 4 Tr. 9m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σt (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	9.8	17.76	32.09	0	9.8	17.76	32.09	24.73	323	0
10	9.05	17.76	32.09	10	9.05	17.76	32.09	24.86	310	0.032
20	1.63	18.01	32.54	20	1.63	18.01	32.54	25.76	225	0.059
30	-0.42	18.05	32.61	30	-0.42	18.05	32.61	26.25	178	0.079
50	-1.40	18.05	32.61	50	-1.40	18.05	32.61	26.25	178	0.115
75	-1.56	18.30	33.06	75	-1.56	18.30	33.06	26.62	143	0.155
100	-1.36	18.33	33.12	100	-1.36	18.33	33.12	26.66	139	0.190
150	-0.58	18.42	33.28	150	-0.58	18.42	33.28	26.77	129	0.257
200	0.29	18.46	33.35	200	0.29	18.46	33.35	26.79	127	0.321
300	0.68	18.55	33.51	300	0.68	18.55	33.51	26.89	117	0.443
397	0·82	18.63	33.63	400	0.83	18.63	33.63	26.99	108	0.556
496	1.28	18.70	33.78	500	1.30	18.70	33.78	27.06	101	0.661
595	1.80	18.81	33.98							

Table 17. (Continued)

Station Ho 45

Date July 23,1959 Time 1800～1858 (S.M.T.) Latitude 49°47′N Longitude 146°17′E
Wind SE 3 Weather f Air Temp. 10.0°C Sea SE 1 Swell SE 1 Col. 4 Tr. 7m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	10.2	17.80	32.16	0	10.2	17.80	32.16	24.75	321	0
10	9.11	17.83	32.21	10	9.11	17.83	32.21	24.95	302	0.031
20	6.15	17.96	32.45	20	6.15	17.96	32.45	25.54	246	0.058
30	−0.21	18.11	32.72	30	−0.21	18.11	32.72	26.30	173	0.079
50	−1.45	18.28	33.03	50	−1.45	18.28	33.03	26.59	146	0.111
75	−1.67	18.29	33.04	75	−1.67	18.29	33.04	26.60	145	0.147
100	−1.60	18.32	33.10	100	−1.60	18.32	33.10	26.65	140	0.182
150	−0.30	18.41	33.26	150	−0.30	18.41	33.26	26.74	132	0.250
200	0.40	18.45	33.33	200	0.40	18.45	33.33	26.76	130	0.315
300	0.02	18.54	33.50	300	0.02	18.54	33.50	26.92	115	0.437
400	0.95	18.63	33.66	400	0.95	18.63	33.66	26.99	108	0.549
499	0.88	18.67	33.73	500	0.88	18.67	33.73	27.04	103	0.655
599	0.58	18.70	33.78	600	0.58	18.70	33.78	27.11	97	0.756

Station Ho 46

Date July 24,1959 Time 0602～0657 (S.M.T.) Latitude 48°19′N Longitude 145°30′E
Wind SSE 5 Weather c Air Temp. 13.0°C Sea SSE 2 Swell S 1 Col. 4 Tr. 6m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	10.4	17.80	32.16	0	10.4	17.80	32.16	24.75	321	0
10	8.92	17.81	32.18	10	8.92	17.81	32.18	24.94	303	0.031
19	1.07	18.00	32.52	20	0.90	18.00	32.52	26.08	194	0.056
29	−0.20	18.09	32.68	30	−0.26	18.10	32.70	26.29	174	0.074
49	−1.51	18.22	32.92	50	−1.54	18.22	32.92	26.50	154	0.107
72	−1.55	18.29	33.04	75	−1.52	18.29	33.04	26.60	145	0.144
95	−1.08	18.35	33.15	100	−0.93	18.36	33.17	26.69	136	0.179
144	−0.23	18.43	33.30	150	−0.14	18.45	33.33	26.79	127	0.245
192	0.44	18.49	33.40	200	0.50	18.49	33.40	26.81	125	0.308
289	0.54	18.55	33.51	300	0.48	18.55	33.51	26.90	117	0.429
370	0.22	18.56	33.53	400	0.15	18.58	33.57	26.96	111	0.543
462	0.08	18.59	33.59	500	0.16	18.61	33.62	27.01	106	0.651
559	0.98	18.65	33.69							

Table 17. (Continued)

Station Ho 47

Date Aug. 9,1959 Time 0600～0730 (S.M.T.) Latitude 46°55′N Longitude 144°54′E
Wind NE 2 Weather c Air Temp. 13.0°C Sea NE 1 Swell NE 1 Col. 6 Tr. 14m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	14.4	17.75	31.71	0	14.4	17.75	31.71	23.87	405	0
10	14.30	17.78	32.12	10	14.30	17.78	32.12	23.93	399	0.040
20	14.23	17.77	32.11	20	14.23	17.77	32.11	23.93	399	0.080
30	3.55	18.14	32.77	30	3.55	18.14	32.77	26.08	194	0.110
50	−1.09	18.18	32.85	50	−1.09	18.18	32.85	26.43	161	0.146
75	−0.23	18.27	33.01	75	−0.23	18.27	33.01	26.53	152	0.185
100	−1.32	18.30	33.06	100	−1.32	18.30	33.06	26.61	144	0.222
150	−0.53	18.40	33.24	150	−0.53	18.40	33.24	26.73	133	0.291
200	0.07	18.48	33.39	200	0.07	18.48	33.39	26.82	124	0.355
(305)	0.47	18.51	33.44	300	0.47	18.51	33.44	26.84	122	0.477
(406)	0.65	18.55	33.51	400	0.65	18.55	33.51	26.89	117	0.596
(510)	0.89	18.61	33.62	500	0.89	18.61	33.62	26.96	111	0.710

Station Ho 48

Date Aug. 9,1959 Time 1800～1854 (S.M.T.) Latitude 47°56′N Longitude 145°58′E
Wind NE 2 Weather c Air Temp. 13.5°C Sea NE 1 Swell NE 2 Col. 6 Tr. 11m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	14.8	17.88	32.30	0	14.8	17.88	32.30	23.98	394	0
10	14.26	17.88	32.30	10	14.26	17.88	32.30	24.07	386	0.039
20	7.02	18.00	32.52	20	7.02	18.00	32.52	25.49	250	0.071
30	1.63	18.02	32.56	30	1.63	18.02	32.56	26.08	194	0.093
50	−0.50	18.18	32.85	50	−0.50	18.18	32.85	26.41	163	0.129
75	−1.33	18.25	32.97	75	−1.33	18.25	32.97	26.54	151	0.168
100	−1.06	18.33	33.12	100	−1.06	18.33	33.12	26.72	134	0.204
145	−0.61	18.40	33.24	150	−0.45	18.40	33.24	26.73	133	0.271
194	0.28	18.53	33.48	200	0.28	18.53	33.48	26.89	117	0.333
291	0.58	18.53	33.48	300	0.58	18.53	33.48	26.87	119	0.451
398	0.55	18.58	33.57	400	0.55	18.58	33.57	26.94	113	0.567
497	0.51	18.63	33.66	500	0.51	18.64	33.68	27.02	105	0.676
595	1.53	18.70	33.78							

Table 17. (Continued)

Station Ho 49

Date Aug. 10,1959 Time 0601～0652 (S.M.T.) Latitude 49°44′N Longitude 147°14′E
Wind ENE 1 Weather f Air Temp. 12.0°C Sea ENE 1 Swell N 2 Col. 5 Tr. 17m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	12.3	17.84	32.23	0	12.3	17.84	32.23	24.41	353	0
10	11.71	17.84	32.23	10	11.71	17.84	32.23	24.51	344	0.035
20	6.11	17.93	32.39	20	6.11	17.93	32.39	25.50	249	0.065
30	1.68	18.05	32.61	30	1.68	18.05	32.61	26.00	202	0.088
50	0.40	18.13	32.76	50	0.40	18.13	32.76	26.34	170	0.125
75	−0.18	×	×	75	−0.18	18.23	32.94	26.51	154	0.166
100	−0.06	18.30	33.06	100	−0.06	18.30	33.06	26.61	144	0.203
150	−0.16	18.36	33.17	150	−0.16	18.37	33.19	26.68	137	0.273
200	0.53	18.44	33.31	200	0.53	18.44	33.31	26.74	132	0.340
296	0.87	18.52	33.46	300	0.87	18.52	33.46	26.83	123	0.468
375	0.89	18.56	33.53	400	0.90	18.57	33.55	26.90	117	0.588
470	0.97	18.60	33.60	500	1.08	18.62	33.64	26.97	110	0.702
566	1.42	18.67	33.73							

Station Ho 50

Date Aug. 10,1959 Time 1830～1910 (S.M.T.) Latitude 50°43′N Longitude 148°54′E
Wind NNE 1 Weather f Air Temp. 11.0°C Sea NNE 1 Swell NNE 1 Col. 5 Tr. 14m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	12.3	17.79	32.14	0	12.3	17.79	32.14	24.34	360	0
10	11.43	17.81	32.18	10	11.43	17.81	32.18	24.52	343	0.035
20	3.74	17.85	32.25	20	3.74	17.85	32.25	24.65	330	0.069
30	1.66	17.80	32.16	30	1.66	17.80	32.16	24.75	321	0.102
50	−1.43	18.10	32.70	50	−1.43	18.10	32.70	26.32	172	0.151
75	−1.62	18.29	33.04	75	−1.62	18.29	33.04	26.61	144	0.191
100	−1.57	18.31	33.08	100	−1.57	18.31	33.08	26.63	142	0.227
150	−0.29	18.42	33.28	150	−0.29	18.42	33.28	26.75	131	0.295
200	0.38	18.49	33.40	200	0.38	18.49	33.40	26.82	124	0.358
299	0.54	18.55	33.51	300	0.54	18.55	33.51	26.90	117	0.479
399	0.62	18.62	33.64	400	0.62	18.61	33.62	26.98	109	0.593
498	0.69	18.67	33.73	500	0.70	18.69	33.77	27.09	98	0.697
598	1.69	18.79	33.95							

Table 17. (Continued)

Station Ho 51

Date Aug. 12, 1959 Time 0535～0635 (S.M.T.) Latitude 52°27′N Longitude 151°02′E
Wind NW 1 Weather c Air Temp. 12.0°C Sea NW 1 Swell × Col. 5 Tr. 15m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	12.7	17.86	32.27	0	12.7	17.86	32.27	24.38	356	0
10	11.17	17.91	32.36	10	11.17	17.91	32.36	24.71	325	0.034
20	9.02	17.91	32.36	20	9.02	17.91	32.36	25.07	290	0.065
30	1.23	18.10	32.70	30	1.23	18.10	32.70	26.21	182	0.089
50	−0.59	18.15	32.79	50	−0.59	18.15	32.79	26.38	166	0.124
75	−0.88	18.24	32.95	75	−0.88	18.24	32.95	26.51	154	0.164
100	−0.45	18.35	33.15	100	−0.45	18.35	33.15	26.66	139	0.201
150	0.70	18.45	33.33	150	0.70	18.45	33.33	26.74	132	0.269
200	0.86	18.46	33.35	200	0.86	18.46	33.35	26.75	131	0.335
300	1.01	18.54	33.50	300	1.01	18.54	33.50	26.85	121	0.462
399	0.99	18.59	33.59	400	1.00	18.59	33.59	26.92	115	0.581
498	1.21	18.63	33.66	500	1.22	18.63	33.66	26.97	110	0.694
596	1.63	18.73	33.84							

Station Ho 52

Date Aug. 12, 1959 Time 1800～1856 (S.M.T.) Latitude 53°25′N Longitude 152°50′E
Wind NE 1 Weather o Air Temp. 13.0°C Sea NE 3 Swell × Col. 4 Tr. 11m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	13.2	17.98	32.48	0	13.2	17.98	32.48	24.44	350	0
10	13.05	18.06	32.63	10	13.05	18.06	32.63	24.58	337	0.034
19	12.28	18.10	32.70	20	10.50	18.11	32.72	25.28	270	0.064
29	3.20	18.18	32.85	30	3.15	18.18	32.85	26.17	186	0.087
49	1.79	18.24	32.95	50	1.70	18.24	32.95	26.39	165	0.122
74	0.22	18.26	32.99	75	0.22	18.26	32.99	26.50	154	0.162
98	0.13	18.28	33.03	100	0.13	18.28	33.03	26.53	152	0.200
149	0.39	18.38	33.21	150	0.40	18.39	33.23	26.68	137	0.272
199	0.92	18.46	33.35	200	0.92	18.46	33.35	26.74	132	0.339
299	1.21	18.52	33.46	300	1.21	18.52	33.46	26.81	125	0.468
390	1.33	18.56	33.53	400	1.34	18.56	33.53	26.86	120	0.591
488	1.40	18.60	33.60	500	1.43	18.62	33.64	26.94	113	0.708
586	1.91	18.76	33.89							

Table 17. (Continued)

Station Ho 53

Date Aug. 13, 1959 Time 0600～0630 (S.M.T.) Latitude 54°28′N Longitude 154°40′E
Wind o Weather f Air Temp. 12.5°C Sea N 1 Swell N 1 Col. 5 Tr. 15m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	15.0	17.93	32.39	0	15.0	17.93	32.39	23.99	393	0
10	14.40	17.98	32.48	10	14.40	17.98	32.48	24.18	375	0.038
20	9.07	18.06	32.63	20	9.07	18.06	32.63	25.27	271	0.070
30	5.58	18.11	32.72	30	5.58	18.11	32.72	25.83	218	0.094
50	0.33	18.17	32.83	50	0.33	18.17	32.87	26.36	168	0.133
75	1.81	18.20	32.88	75	1.81	18.20	32.88	26.32	172	0.176
100	1.51	18.37	33.19	100	1.51	18.37	33.19	26.58	147	0.216
150	1.56	18.28	33.03	150	1.56	18.28	33.03	26.45	159	0.293

Station Ho 54

Date Aug. 13, 1959 Time 1853～1950 (S.M.T.) Latitude 54°00′N Longitude 155°06′E
Wind SW 1 Weather r Air Temp. 13.5°C Sea SW 1 Swell SW 1 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	15.9	17.25	31.17	0	15.9	17.25	31.17	22.85	502	0
10	15.00	17.39	31.42	10	15.00	17.39	31.42	23.24	465	0.048
20	6.40	17.94	32.41	20	6.40	17.94	32.41	25.49	250	0.084
30	3.83	18.07	32.65	30	3.83	18.07	32.65	25.97	205	0.107
50	0.30	18.15	32.79	50	0.30	18.15	32.79	26.33	171	0.145
75	0.00	18.18	32.85	75	0.00	18.18	32.85	26.39	165	0.187

Table 17. (Continued)

Station Ho 55

Date Aug. 14,1959 Time 1844~1934 (S.M.T.) Latitude 52°26′N Longitude 154°50′E
Wind NW 5 Weather b Air Temp. 13.0°C Sea NW 5 Swell NNW 3 Col. × Tr. ×

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	12.8	18.02	32.56	0	12.8	18.02	32.56	24.57	338	0
8	12.65	18.07	32.65	10	11.25	18.07	32.65	24.91	306	0.032
16	7.30	18.20	32.88	20	6.38	18.23	32.94	25.90	211	0.058
24	5.47	18.27	33.01	30	3.40	18.30	33.06	26.32	172	0.077
41	1.66	18.35	33.15	50	0.98	18.36	33.17	26.60	145	0.109
62	0.34	×	×	75	−0.04	18.38	33.21	26.69	136	0.144
69	−0.05	18.38	33.21	100	−0.02	18.37	33.19	26.67	138	0.178
104	−0.02	18.37	33.19							
139	0.23	18.34	33.13							

Station Ho 56

Date Aug. 15,1959 Time 1004~1050 (S.M.T.) Latitude 51°06′N Longitude 154°34′E
Wind NNW 5 Weather b Air Temp. 10.0°C Sea NNW 4 Swell NNW 3 Col. 6 Tr. 7m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	9.1	18.15	32.79	0	9.1	18.15	32.79	25.39	260	0
10	8.52	18.13	32.76	10	8.52	18.13	32.76	25.46	253	0.026
19	5.95	18.17	32.83	20	5.90	18.18	32.85	25.89	212	0.049
29	5.51	18.25	32.97	30	5.43	18.25	32.97	26.04	198	0.070
48	2.09	18.31	33.08	50	2.00	18.31	33.08	26.46	158	0.106
72	1.21	18.37	33.19	75	1.00	18.37	33.19	26.62	143	0.144
95	0.64	×	×	100	0.64	18.40	33.24	26.68	137	0.179
145	1.11	18.43	33.30	150	1.08	18.43	33.30	26.70	135	0.247
190	0.96	18.45	33.33	200	0.97	18.48	33.39	26.77	129	0.313
885	1.33	18.54	33.50	300	1.33	18.55	33.51	26.85	121	0.438
335	1.36	18.57	33.55	400	1.41	18.61	33.62	26.93	114	0.556
423	1.45	18.62	33.64	500	1.61	18.66	33.71	26.99	108	0.668
516	1.65	18.68	33.75							

Table 17. (Continued)

Station Ho 57

Date Aug. 16, 1959 Time 1545~1640 (S.M.T.) Latitude 50°31′N Longitude 154°30′E
Wind S 2 Weather f Air Temp. 9.5°C Sea S 1 Swell S 1 Col. 6 Tr. 8m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	9.2	18.13	32.76	0	9.2	18.13	32.76	25.21	277	0
10	9.13	18.13	32.76	10	9.13	18.13	32.76	25.22	276	0.028
20	8.72	18.13	32.76	20	8.72	18.13	32.76	25.29	269	0.055
30	3.92	18.22	32.92	30	3.92	18.22	32.92	26.16	187	0.078
50	1.37	18.29	33.04	50	1.37	18.29	33.04	26.47	157	0.112
75	1.03	18.38	33.21	75	1.03	18.38	33.21	26.63	142	0.149
100	1.15	18.40	33.24	100	1.15	18.40	33.24	26.65	140	0.184
150	1.05	×	×	150	1.05	18.44	33.31	26.71	135	0.253
200	0.93	18.46	33.35	200	0.93	18.46	33.35	26.74	132	0.320
300	1.28	18.46	33.35	300	1.28	18.46	33.35	26.72	134	0.453
400	1.42	18.58	33.57	400	1.42	18.58	33.57	26.89	117	0.579
500	1.54	18.67	33.73	500	1.54	18.67	33.73	27.00	107	0.692
599	1.92	18.78	33.91							

Station Ho 58

Date Aug. 17, 1959 Time 1315~1425 (S.M.T.) Latitude 50°29′N Longitude 153°50′E
Wind S 4 Weather r Air Temp. 9.0°C Sea S 3 Swell S 1 Col. 5 Tr. 7m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	10.4	17.91	32.36	0	10.4	17.91	32.36	24.91	306	0
10	9.16	18.06	32.63	10	9.16	18.06	32.63	25.26	272	0.029
19	8.27	18.19	32.86	20	7.80	18.19	32.86	25.64	236	0.054
29	4.23	18.23	32.94	30	4.14	18.23	32.94	26.15	188	0.075
49	2.18	×	×	50	2.08	18.27	33.01	26.40	164	0.110
69	1.02	18.23	32.94	75	0.96	18.31	33.08	26.53	152	0.150
91	0.94	18.33	33.12	100	0.97	18.34	33.14	26.57	148	0.188
124	1.03	18.38	33.21	150	0.89	18.39	33.22	26.64	141	0.260
168	0.86	18.39	33.22	200	0.90	18.43	33.30	26.71	135	0.329
255	1.14	18.52	33.46	300	1.33	18.48	33.39	26.74	132	0.463
295	(1.34)	18.48	33.39	400	1.31	18.53	33.48	26.81	125	0.592
380	1.30	18.51	33.44							
464	1.36	18.63	33.66							

Table 17. (Continued)

Station Ho 59

Date Aug. 18, 1959 Time 1605～1650 (S.M.T.) Latitude 50°34′N Longitude 154°09′E
Wind S 2 Weather f Air Temp. 9.5°C Sea S 4 Swell S 1 Col. 5 Tr. 10m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	10.5	18.11	32.72	0	10.5	18.11	32.72	25.19	279	0
10	10.32	18.05	32.61	10	10.32	18.05	32.61	25.05	292	0.029
20	6.44	18.20	32.88	20	6.44	18.20	32.88	25.85	216	0.054
30	3.24	18.23	32.94	30	3.24	18.23	32.94	26.24	179	0.074
50	2.21	18.29	33.04	50	2.21	18.29	33.04	26.41	163	0.108
75	0.74	18.29	33.04	75	0.74	18.29	33.04	26.52	153	0.148
100	0.96	18.35	33.15	100	0.96	18.35	33.15	26.59	146	0.185
148	1.15	18.38	33.21	150	1.14	18.38	33.21	26.62	143	0.257
197	1.06	18.42	33.28	200	1.06	18.42	33.28	26.68	137	0.327
294	1.10	18.49	33.40	300	1.10	18.49	33.40	26.78	128	0.460
391	1.22	18.55	33.51	400	1.24	18.55	33.51	26.85	121	0.585
489	1.51	18.65	33.69	500	1.56	18.65	33.69	26.97	110	0.702
588	1.85	18.75	33.87							

Station Ho 60

Date Aug. 19, 1959 Time 1230～1320 (S.M.T.) Latitude 50°36′N Longitude 155°10′E
Wind SW 2 Weather c Air Temp. 10.2°C Sea SW 3 Swell SW 1 Col. 5 Tr. 8m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	9.2	18.05	32.61	0	9.2	18.05	32.61	25.24	274	0
10	9.05	18.13	32.76	10	9.05	18.13	32.76	25.37	262	0.027
20	7.86	×	×	20	7.86	18.18	32.85	25.63	237	0.052
30	5.76	18.23	32.94	30	5.76	18.23	32.94	25.93	209	0.074
50	3.98	18.31	33.08	50	3.98	18.31	33.08	26.29	174	0.112
75	2.75	×	×	75	2.75	18.32	33.10	26.41	163	0.154
100	2.08	18.34	33.13	100	2.08	18.34	33.13	26.50	154	0.194
149	1.30	18.40	33.24	150	1.30	18.46	33.24	26.64	141	0.268
199	0.94	×	×	200	0.94	18.44	33.31	26.72	134	0.337
298	1.25	18.51	33.44	300	1.25	18.51	33.44	26.79	127	0.468
398	1.36	18.58	33.57	400	1.36	18.58	33.57	26.89	117	0.590
499	1.56	18.64	33.68	500	1.56	18.64	33.68	26.99	111	0.705
599	1.85	18.73	33.84							

Table 17. (Continued)

Station Ho 61

Date Aug. 20, 1959 Time 1801～1848 (S.M.T.) Latitude 49°26′N Longitude 152°35′E
Wind SE 2 Weather f Air Temp. 10.4°C Sea SE 1 Swell SE 1 Col. 6 Tr. 11m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	10.5	18.05	32.61	0	10.5	18.05	32.61	25.10	287	0
10	9.60	18.07	32.65	10	9.60	18.07	32.65	25.20	278	0.028
20	5.80	18.26	32.99	20	5.80	18.26	32.99	26.01	201	0.052
30	3.13	18.34	33.13	30	3.13	18.34	33.13	26.41	163	0.070
50	2.10	18.43	33.30	50	2.10	18.43	33.30	26.63	142	0.101
75	2.14	18.43	33.30	75	2.14	18.43	33.30	26.62	143	0.137
100	2.61	×	×	100	2.61	18.44	33.31	26.60	145	0.173
150	2.14	18.45	33.33	150	2.14	18.45	33.33	26.65	140	0.245
200	1.66	18.44	33.31	200	1.66	18.44	33.31	26.67	138	0.315
300	1.55	18.46	33.35	300	1.55	18.46	33.35	26.71	135	0.452
400	1.55	18.47	33.37	400	1.55	18.47	33.37	26.72	134	0.588
500	1.48	18.48	33.39	500	1.48	18.48	33.39	26.74	132	0.721
599	1.49	18.57	33.55							

Station Ho 62

Date Aug. 21, 1959 Time 0600～0705 (S.M.T.) Latitude 48°22′N Longitude 150°40′E
Wind SE 3 Weather f Air Temp. 11.0°C Sea SE 1 Swell ESE 1 Col. 5 Tr. 11m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	12.0	×	×	0	12.0	17.90	32.34	24.55	340	0
10	12.15	17.93	32.39	10	12.15	17.93	32.39	24.56	339	0.034
20	6.85	18.01	32.54	20	6.85	18.01	32.54	25.53	247	0.063
30	4.85	18.09	32.68	30	4.85	18.09	32.68	25.88	213	0.086
50	0.65	18.20	32.88	50	0.65	18.20	32.88	26.39	165	0.124
74	0.61	18.32	33.10	75	0.61	18.32	33.10	26.56	149	0.163
98	0.39	18.36	33.17	100	0.40	18.36	33.17	26.63	142	0.199
143	0.74	18.43	33.30	150	0.83	18.44	33.19	26.72	134	0.268
190	1.22	18.50	33.42	200	1.21	18.50	33.42	26.78	128	0.334
287	0.91	18.53	33.48	300	1.00	18.54	33.50	26.85	121	0.459
380	1.13	18.55	33.51	400	1.18	18.56	33.53	26.87	119	0.580
476	1.34	×	×	500	1.34	18.60	33.60	26.92	115	0.697
572	1.36	18.65	33.69							

Table 17. (Continued)

Station Ho 63

Date Aug. 21,1959 Time 1802～1850 (S.M.T.) Latitude 47°39′N Longitude 148°56′E
Wind 0 Weather f Air Temp. 14.0°C Sea 0 Swell 0 Col. 5 Tr. 8m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	14.2	17.90	32.34	0	14.2	17.90	32.34	24.11	382	0
10	10.29	18.09	32.68	10	10.29	18.09	32.68	25.62	238	0.031
20	5.82	18.17	32.83	20	5.82	18.17	32.83	25.88	213	0.054
30	3.52	18.26	32.99	30	3.52	18.26	32.99	26.25	178	0.074
50	2.25	18.35	33.15	50	2.25	18.35	33.15	26.50	154	0.107
75	2.22	18.37	33.19	75	2.22	18.37	33.19	26.53	152	0.145
100	2.14	18.40	33.24	100	2.14	18.40	33.24	26.58	147	0.183
150	1.52	18.40	33.24	150	1.52	18.40	33.24	26.62	143	0.256
200	1.52	18.48	33.39	200	1.52	18.48	33.39	26.73	133	0.325
300	1.44	18.52	33.46	300	1.44	18.52	33.46	26.80	126	0.455
393	1.34	18.56	33.53	400	1.31	18.56	33.53	26.86	120	0.578
491	1.13	18.61	33.62	500	1.15	18.62	33.64	26.96	111	0.694
589	1.51	18.68	33.75							

Station Ho 64

Date Aug. 22,1959 Time 0603～0647 (S.M.T.) Latitude 46°36′N Longitude 147°07′E
Wind NW 2 Weather c Air Temp. 16.0°C Sea NW 1 Swell NNW 1 Col. 5 Tr. 14m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	△st (cl/ton)	△D (dyn.m)
0	17.1	17.87	32.29	0	17.1	17.87	32.29	23.43	447	0
10	15.01	18.12	32.74	10	15.01	18.12	32.74	24.24	369	0.041
20	7.95	18.24	32.95	20	7.95	18.24	32.95	25.69	231	0.071
30	3.89	18.28	33.03	30	3.89	18.28	33.03	26.25	178	0.091
49	2.46	×	×	50	2.38	18.35	33.15	26.49	155	0.121
72	1.30	×	×	75	1.31	18.40	33.24	26.64	141	0.158
96	1.62	×	×	100	1.62	18.44	33.31	26.67	138	0.193
144	1.59	18.49	33.04	150	1.57	18.50	33.42	26.76	130	0.260
191	1.52	18.52	33.46	200	1.52	18.52	33.46	26.79	127	0.324
287	1.46	18.56	33.53	300	1.44	18.56	33.53	26.85	121	0.449
377	1.30	18.59	33.59	400	1.18	18.60	33.60	26.93	114	0.567
473	1.07	18.62	33.64	500	1.11	18.64	33.68	26.99	108	0.678
569	1.05	18.80	33.96							

Table 17. (Continued)

Station Ho 65

Date Aug. 22, 1959 Time 1737～1900 (S.M.T.) Latitude 49°57′N Longitude 144°57′E
Wind NE 3 Weather c Air Temp. 16.0°C Sea NE 3 Swell NNE 3 Col. 5 Tr. 17m

Observed				Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t (g/L)	$\triangle$st (cl/ton)	$\triangle$D (dyn.m)
0	17.0	17.99	32.50	0	17.0	17.99	32.50	23.62	429	0
10	16.75	18.04	32.59	10	16.75	18.04	32.59	23.75	416	0.042
19	7.07	18.07	32.65	20	6.80	18.07	32.65	25.61	239	0.075
29	×	×	×	30	5.60	18.15	32.79	25.88	213	0.098
48	3.34	18.23	32.94	50	2.90	18.23	32.94	26.27	176	0.137
72	0.38	×	×	75	0.35	18.31	33.08	26.56	149	0.178
95	×	×	×	100	0.21	18.35	33.15	26.62	143	0.225
145	0.31	18.30	33.06	150	0.40	18.42	33.28	26.72	134	0.294
190	0.81	18.46	33.35	200	0.89	18.46	33.35	26.75	131	0.380
285	1.28	18.48	33.39	300	1.25	18.52	33.46	26.81	125	0.478
359	1.06	18.57	33.55	400	0.99	18.57	33.55	26.90	117	0.599
450	0.98	18.59	33.59	500	1.07	18.61	33.62	26.55	112	0.714
543	1.24	18.65	33.69							

6. Data on Radio-Activity of Natural Sea Water
(自然海水の放射能記録)

A liter of water was dipped from the surface at hydrographic stations from Os 1 to Os 19, and brought to the University by keeping in plastic bottles.

Radio-activity was measured by M. Oguro by carrier method in the University.

The efficiency of the G-M counter used was kept at 5×10^{-3} mμc/cpm.

Table 18. Data on radio-activity of natùral sea water in the "Hokusei Maru" cruise 6 (1) to the North Pacific

No. of station	Radio-activity* (cpm/L)
Os 1	3.2
Os 2	-0.4
Os 3	1.6
Os 4	1.0
Os 5	0.6
Os 6	0
Os 7	-2.8
Os 8	2.8
Os 9	-0.4
Os 10	0.4
Os 11	1.6
Os 12	-0.6
Os 13	0.8
Os 14	-3.0
Os 15	1.2
Os 16	-4.8
Os 17	0.8
Os 18	2.4
Os 19	-5.4

* Back-scatterings were 51.7 ± 1.0.

7. Data on Plankton Collected with a Fine Mesh Net
(細目ネット採集プランクトン記録)

Vertical hauls with a fine mesh net, 30 cm × 150 cm, conical, made of bolting silk XX 13, having approximately 0.11 mm mesh aperture, were carried out from about 100 meter depth to the surface once at each hydrographic station.

A flow-meter was mounted at the center of the mouth ring of the net to register the quantity of water filtered.

Displacement volume of the samples was measured by means of aspiration filtering apparatus, and wet weight of the samples was obtained by weighing the samples retained on the filter paper of this apparatus.

Dominant forms occurring in the samples were recorded.

The measurement was made at the Hokkaido Regional Fisheries Research Laboratory in Yoichi.

Table 19. Plankton data (30 cm × 150 cm, XX 13, fine mesh net) in the "Hokusei

Cruise	Station	Position	Ship's date	Ship's time	Wire run out (m)	Wire angle (°)	Revolutions of flow-meter
	Ho 1	45°33′N 146°05′E	June 5	1700	100	5	529
	Ho 2	46°31′N 147°45′E	6	1615	〃	33	523
	Ho 3	47°18′N 150°06′E	7	1608	〃	11	260
	Ho 4	48°55′N 152°30′E	9	2445	〃	17	456
	Ho 5	50°30′N 153°28′E	10	1700	〃	18	770
	Ho 6	50°44′N 154°24′E	11	1925	〃	9	170
	Ho 7	49°39′N 156°44′E	14	1845	〃	30	472
	Ho 9	50°27′N 161°26′E	15	1815	〃	9	332
	Ho 10	50°27′N 164°04′E	16	0640	〃	9	482
	Ho 11	50°42′N 166°31′E	16	1840	〃	10	372
6 (1)	Ho 12	50°42′N 169°10′E	17	0630	〃	31	558
	Ho 13	49°51′N 172°45′E	18	1845	〃	22	563
	Ho 14	49°51′N 175°00′E	19	0535	〃	19	432
	Ho 17	49°07′N 168°11′E	20	1830	〃	20.5	345
	Ho 18	49°00′N 164°54′E	21	1845	〃	19.5	400
	Ho 19	49°00′N 161°47′E	22	1830	〃	34.5	454
	Ho 20	47°54′N 159°05′E	23	1825	〃	21	333
	Ho 21	47°06′N 157°02′E	24	0630	〃	23	388
	Ho 22	46°22′N 154°45′E	24	1835	〃	5	122
	Ho 23	45°14′N 152°05′E	25	1845	〃	3	150
	Ho 24	44°22′N 150°00′E	26	0645	〃	14	117
	Ho 25	43°39′N 148°17′E	26	1630	〃	9.5	135

Maru" cruise 6 (1-3) to the North Pacific and Okhotsk Sea in June-August 1959

Volume of water filtered (m^3)	Displacement volume per $1000m^3$ (cc)	Wet weight per $1000m^3$ (gr)	Dominant species
7.0	142	57	*Ch. concavicornis*, *Ch. convolutus*
6.9	187	72	*Ch. concavicornis*, *Ceratium arcticum*, Copepods
3.4	579	434	*Ch. atlanticus*, *Ch. concavicornis*, *Coscinodiscus* sp.
6.1	248	116	*Ch. atlanticus*
10.2	293	196	*Fragilaria* sp., *Ch. atlanticus*
2.3	1506	1107	*Fragilaria* sp., *Ch. atlanticus*, *Thal'ra Nordenskiöldi*
6.3	718	447	Copepods, *Peridinium* sp., *Thal'rix longissima*
4.4	386	45	*Ch. concavicornis*, *Ch. convolutus*, Copepods
6.4	234	109	*Ch. concavicornis*, *Ch. convolutus*
4.9	607	304	*Nitzschia seriata*, *Ch. diadema*, *Ch. debilis*
7.4	1107	999	*Ch. concavicornis*, Copepods, *Ch. convolutus*
7.5	374	227	*Ch. compressus*, *Ch. radicans*, *Ch. debilis*, *Nitzschia seriata*
5.7	174	105	*Ch. radicans*, *Rh. alata*, *Ch. atlanticus*
4.6	218	65	*Nitzschia seriata*, *Ch. concavicornis*
5.3	151	19	*Ch. concavicornis*
6.0	1161	846	*Ch. concavicornis*, *Ch. convolutus*, *Rh. hebetata* f.s.
4.4	226	68	*Ch. socialis*, *Ch. debilis*, *Fragilaria* sp.
5.2	97	19	*Ch. concavicornis*
1.6	1234	494	*Thal'rix longissima*, *Ch. atlanticus*
2.0	753	452	*Thal'rix longissima*, *Ch. atlanticus*
1.5	1609	1094	*Rh. hebetata* f.s., *Thal'rix longissima*, *Ch. atlanticus*
1.8	1339	725	*Ch. atlanticus*, Copepods, *Rh. hebetata* f.s., *Thal'rix longissima*

Table 19.

Cruise	Station	Position	Ship's date	Ship's time	Wire run out (m)	Wire angle (°)	Revolutions of flow-meter
	Ho 26	45°36′N 144°45′E	July 9	1825	100	22	426
	Ho 27	46°19′N 146°52′E	10	0700	〃	40	425
	Ho 28	47°08′N 148°57′E	10	1840	〃	15	385
	Ho 29	47°59′N 150°58′E	11	0640	〃	50	530
	Ho 30	49°32′N 152°48′E	12	0620	〃	50	303
	Ho 31	50°39′N 154°23′E	12	1830	〃	50	200
	Ho 32	51°45′N 155°36′E	13	1930	〃	38	200
	Ho 33	52°33′N 154°25′E	14	1250	〃	15	220
	Ho 34	54°15′N 154°40′E	15	1830	〃	31	366
	Ho 35	55°52′N 154°52′E	16	0615	50	33	273
6 (2)	Ho 36	56°20′N 151°49′E	17	0630	100	58	149
	Ho 37	56°20′N 150°04′E	17	1850	〃	24	535
	Ho 38	56°15′N 146°50′E	18	1853	〃	43	676
	Ho 39	56°15′N 145°00′E	19	0940	〃	33	512
	Ho 40	55°39′N 144°05′E	19	1935	〃	29	350
	Ho 41	55°00′N 144°05′E	20	1000	〃	38	372
	Ho 42	55°00′N 146°03′E	20	1845	〃	43	408
	Ho 43	53°35′N 146°56′E	21	1840	〃	32	410
	Ho 44	51°41′N 147°11′E	22	1850	〃	8	238
	Ho 45	49°47′N 146°17′E	23	1840	〃	8	136
	Ho 46	48°19′N 145°30′E	24	0630	〃	28	518

(Continued)

Volume of water filtered (m^3)	Displacement volume per $1000m^3$ (cc)	Wet weight per $1000m^3$ (gr)	Dominant species
5.7	141	18	Copepods, *Peridinium* sp., *Ceratium arcticum*
5.6	266	142	Copepods, *Ceratium arcticum*
5.1	685	411	*Ch. convolutus, Ch. atlanticus, Ch. concavicornis*
7.0	952	796	*Ch. convolutus, Ch. concavicornis, Rh, hebetata* f.*s.*
4.0	795	546	*Ch. atlanticus, Tal'rix longissima,* Copepods
2.6	1318	753	*Ch. atlanticus, Tal'rix longissima*
2.6	301	151	*Ch. atlanticus, Tal'rix longissima, Ceratium longipes*
2.9	616	239	*Ceratium longipes,* Copepods, *Ch. atlanticus*
4.9	1111	638	*Ceratium longipes,* Copepods; *Peridinium* sp., *Ceratium arcticum*
1.8	243	97	*Ceratium longipes,* Copepods
2.0	606	404	*Ch. atlanticus, Tal'rix longissima, Ceratium longipes*
7.1	99	14	Copepods, *Ceratium arcticum, Ceratium fusus*
9.0	156	45	*Rh. alata*
6.8	221	29	*Ch. concavicornis, Rh. alata, Ch. decipiens*
4.6	430	258	*Rh. alata, Ch. convolutus, Ch. concavicornis*
4.9	486	324	*Rh. alata, Ch. convolutus*
5.4	554	388	*Rh. alata, Ch. convolutus*
5.4	514	349	*Rh. alata, Ch. convolutus, Ch. atlanticus*
3.2	569	158	*Ch. atlanticus, Ch. concavicornis, Ch. convolutus*
1.8	443	111	*Ch. atlanticus, Ch. convolutus, Ch. concavicornis*
6.9	218	131	*Ch. concavicornis, Ch. convolutus, Ch. atlanticus*

Table 19.

Cruise	Station	Position	Ship's date	Ship's time	Wire run out (m)	Wire angle (°)	Revolutions of flow-meter
	Ho 47	46°55′N 144°54′E	Aug. 9	0640	100	10	409
	Ho 48	47°56′N 145°58′E	9	1830	〃	9	358
	Ho 49	49°14′N 147°14′E	10	0645	〃	19	412
	Ho 50	50°43′N 148°54′E	10	1930	〃	5	242
	Ho 51	52°27′N 151°02′E	12	0630	〃	10	394
	Ho 52	53°25′N 152°50′E	12	1850	〃	13	425
	Ho 53	54°29′N 154°40′E	13	0640	〃	11	341
	Ho 54	54°00′N 155°06′E	13	1920	〃	16	351
	Ho 55	52°26′N 154°50′E	14	1934	〃	54	545
6 (3)	Ho 56	51°06′N 154°34′E	15	1040	〃	25	529
	Ho 57	50°31′N 154°30′E	16	1620	〃	11	334
	Ho 58	50°29′N 153°50′E	17	1330	〃	41	584
	Ho 59	50°34′N 154°09′E	18	1700	〃	18	361
	Ho 60	50°36′N 155°10′E	19	1300	〃	14	329
	Ho 61	49°26′N 152°35′E	20	1840	〃	8	258
	Ho 62	48°22′N 150°40′E	21	0640	〃	19	439
	Ho 63	47°39′N 148°56′E	21	1830	〃	9	345
	Ho 64	46°36′N 147°07′E	22	0630	〃	20	250
	Ho 65	45°57′N 144°57′E	22	1840	〃	22	452

Revolutions of flow-meter without net for 100 m vertical haul:

Flow-meter TSK 186: Cruise 6 (1)-(2) 532 revol., Cruise 6 (3) 550 revol.

(Continued)

Volume of water filtered (m^3)	Displacement volume per $1000m^3$ (cc)	Wet weight per $1000m^3$ (gr)	Dominant species
5.4	184	18	*Tal'rix longissima*, Copepods, *Ch. pervianus*, *Ch. concavicornis*
4.7	210	126	Copepods, *Ch. atlanticus*, *Ceratium fusus*
5.5	457	366	*Ch. atlanticus*, Copepods, *Ceratium longipes*
3.2	871	653	*Ch. concavicornis*, *Ch. convolutus*, *Ch. atlanticus*
5.2	573	325	*Ceratium longipes*, *Ch. atlanticus*, Copepods
5.6	886	815	*Ceratium longipes*
4.5	618	464	Copepods, *Ceratium longipes*
4.7	429	322	*Ch. concavicornis*, *Rh. alata*, *Ch. convolutus*, *Rh. hebetata* f.*s.*
7.2	691	594	Copepods, *Ceratium longipes*, *Ceratium arcticum*
7.0	498	413	*Ch. atlanticus*, *Ceratium longipes*, Copepods
4.4	631	451	*Ceratium longipes*, Copepods, *Ch. atlanticus*
7.8	517	505	*Ceratium longipes*, Copepods, *Coscinodiscus* sp.
4.8	417	375	*Ceratium longipes*, Copepods
4.4	412	298	*Ch. atlanticus*, *Ch. debilis*, *Ch. convolutus*
3.4	438	233	*Ceratium longipes*, *Ch. atlanticus*, Copepods
5.8	343	257	*Ch. atlanticus*, Copepods
4.6	284	196	*Ch. atlanticus*, *Ch. convolutus*, *Parafavella* sp.
3.3	301	60	*Ch. atlanticus*, Copepods, *Thal'rix longissima*
6.0	333	167	Copepods

8. Data on Plankton Collected with a North Pacific Standard Net
(北太平洋標準ネット採集プランクトン記録)

Vertical hauls with a North Pacific standard net, 45 cm × 180 cm, conical, made of bolting silk GG 54, having approximately 0.33 mm mesh aperture, were carried out from about 150 meter depth to the surface once at each hydrographic station.

A flow-meter was mounted at the center of the mouth ring of the net to register the quantity of water filtered.

Unusual large organisms such as jellyfish were removed from the samples before they were submitted to volume and weight measurements, and the number of these organisms was counted separately.

Displacement volume of the samples was measured by means of aspiration filtering apparatus, and wet weight of the samples was obtained by weighing the samples retained on the filter paper of this apparatus.

Dominant forms were recorded with their number per 1000 m^3 of water.

The measurement was made at the Plankton Laboratory of the University.

Table 20. Plankton data (45 × 180 cm, GG 54, NORPAC standard net) in the

Cruise	Station	Position	Ship's date	Ship's time	Wire run out (m)	Wire angle	Estimated depth of haul (m)	Revolutions of flow-meter	Volume of water filtered (m^3)	Displacement of sample per $1000m^3$ (cc)	Wet weight of sample per 1000^3m (gr)
	Ho 1	45°33′N 146°05′E	June 5	1650	150	15	145	832	23.2	129	60
	Ho 2	46°31′N 147°45′E	6	1625	150	33.5	124	839	23.4	85	85
	Ho 3	47°18′N 150°06′E	7	1620	150	14	146	835	23.3	302	172
	Ho 4	48°55′N 152°30′E	9	1250	150	23	138	879	24.5	408	307
	Ho 5	50°30′N 153°28′E	10	1650	150	20	141	910	25.4	275	268
	Ho 6	50°44′N 154°24′E	11	1930	150	9.5	148	848	23.7	1434	945
	Ho 7	49°39′N 156°44′E	14	1830	150	41	113	985	27.5	727	480
	Ho 8	50°07′N 159°05′E	15								
	Ho 9	50°27′N 161°26′E	15	1840	150	10	148	800	22.3	179	63
	Ho 10	50°27′N 164°04′E	16	0615	150	30	130		24.0	126	109
	Ho 11	50°42′N 166°31′E	16	1850	150	23.5	137	952	26.6	263	188
6(1)	Ho 12	50°42′N 169°10′E	17	0600	150	38	118	1315	36.7	1308	1324
	Ho 13	49°51′N 172°45′E	18	1830	150	31	129	950	26.5	453	408
	Ho 14	49°51′N 175°00′E	19	0520	150	27	134	675	18.8	479	404
	Ho 15	49°07′N 175°15′E	19								
	Ho 16	49°07′N 170°54′E	20	0630	150	30	130	915	25.5	275	212
	Ho 17	49°07′N 168°11′E	20	1850	150	33	126	950	26.5	189	76
	Ho 18	49°00′N 164°54′E	21	1845	150	33.5	124	959	26.8	75	78
	Ho 19	49°00′N 161°47′E	22	1900	150	22.5	138	554	15.5	194	84
	Ho 20	47°54′N 159°05′E	23	1840	150	23	138	1010	28.2	780	426
	Ho 21	47°06′N 157°02′E	24	0645	150	22	139	911	25.4	236	181
	Ho 22	46°22′N 154°45′E	24	1850	150	7.5	149	776	21.7	138	189
	Ho 23	45°14′N 152°05′E	25	1900	150	12	147	726	20.3	640	532
	Ho 24	44°22′N 150°00′E	26	0650	150	14	146	712	19.9	804	734
	Ho 25	43°39′N 148°17′E	26	1650	150	9.5	148	878	24.5	367	131

"Hokusei Maru" cruise 6 (1-3) to the North Pacific and Okhotsk Sea in June–August 1959

Dominant organisms (Individual number in 1000m³)								Unusual large organisms removed before volume and weight measurements (number in a haul)	
Calanus cristatus	*Calanus plumchrus*	*Calanus finmarchicus*	*Metridia lucens*	*Eucalanus bungii bungii*	Euphausiid	Amphipod	*Sagitta*	*Aglantha*	Others
43	2332	0	862	3534	86	43	86	4	
172	2210	0	685	342	172	342	0		1 Squid
687	22000	0	1030	12017	343	0	343	34	
1306	22204	0	11000	522449	655	48	7200	64	
1260	32020	0	1260	8195	315	78	4450	73	1 Polychaeta
3378	41199	0	21620	1708017	211	127	128270	85	
1162	960000	0	0	104720	218	218	58280	84	
683	2330	0	795	3722	0	135	628	30	
3165	3000	0	168	1000	0	42	417	16	
91729	234586	0	54135	186466	75	715	6050	19	1 Squid
45341	1310	0	0	98631	27	0	82	11	
2444	63396	0	7245	857358	226	302	3020	27	1 Polychaeta
2547	25531	0	5101	121702	252	1594	1966	5	
2198	20392	0	7216	19451	431	196	2821	13	1 Squid
113	3619	0	1812	10867	189	340	750	5	
298	2782	0	2083	53731	560	149	485	18	1 Squid
323	5420	0	1805	6968	65	322	1162	10	
2819	9078	0	5674	40851	71	248	248	93	22 Jellyfish
312	11961	0	945	11385	39	631	1773	16	
92	784	0	1106	1106	184	92	461		
2360	14975	0	55961	9458	97	441	48	45	
804	77990	0	16080	177688	0	0	8844	25	
5244	44401	0	16327	194367	202	81	1018	35	

Table 20.

Cruise	Station	Position	Ship's date	Ship's time	Wire run out (m)	Wir angle	Estimated depth of haul (m)	Revolutions of flow-meter	Volume of water filtered (m^3)	Displacement of sample per 1000m^3 (cc)	Wet weight of sample per 1000m^3 (gr)
	Ho 26	45°36′N 144°45′E	July 9	1800	150	25	136	1100	30.7	32	26
	Ho 27	46°19′N 146°52′E	10	0650	150	45	106	1022	28.5	212	105
	Ho 28	47°08′N 148°57′E	10	1820	150	25	136	830	23.1	432	294
	Ho 29	47°59′N 150°58′E	11	0620	150	60	75	1180	32.9	973	1055
	Ho 30	49°32′N 152°48′E	12	0610	150	52	92	948	26.5	378	344
	Ho 31	50°39′N 154°23′E	12	1820	150	58	80	948	26.5	642	479
	Ho 32	52°45′N 155°36′E	13	1920	150	43	110	905	25.3	395	352
	Ho 33	52°33′N 154°25′E	14	1245	150	29	131	830	23.2	431	258
	Ho 34	54°15′N 154°40′E	15	1830	150	45	106	958	26.7	712	506
	Ho 35	55°52′N 154°52′E	16	0610	50	43	37	300	7.9	1012	912
	Ho 36	56°20′N 151°49′E	17	0620	150	65	63	965	26.9	131	190
6(2)	Ho 37	56°20′N 150°04′E	17	1900	150	29	131	1164	32.5	31	28
	Ho 38	56°15′N 146°50′E	18	1850	150	46	104	1293	36.1	42	42
	Ho 39	56°15′N 145°00′E	19	0930	150	29	131	898	25.1	80	76
	Ho 40	55°39′N 144°05′E	19	1920	150	24	137	966	27.0	296	300
	Ho 41	55°00′N 144°05′E	20	0945	150	40	115	1080	30.2	331	245
	Ho 42	55°00′N 146°03′E	20	1930	150	38	118	1109	31.0	904	778
	Ho 43	53°35′N 146°56′E	21	1830	150	38	118	921	25.7	584	424
	Ho 44	51°41′N 147°11′E	22	1840	150	14	146	800	22.3	448	341
	Ho 45	49°47′N 146°17′E	23	1830	150	9	148	904	25.2	199	139
	Ho 46	48°19′N 145°30′E	24	0630	150	45	106	1019	28.5	456	460
	Ho 47	46°55′N 144°54′E	Aug. 9	0700	150	15	145	765	21.4	23	28
6(3)	Ho 48	47°56′N 145°58′E	9	1850	150	13	146	942	26.3	152	133
	Ho 49	49°14′N 147°14′E	10	0655	150	21	140	858	24.0	625	476
	Ho 50	50°43′N 148°54′E	10	1920	150	6	149	869	24.3	340	331

(Continued)

Dominant organisms (Individual number in 1000m³)								Unusual large organisms removed before volume and weight measurements (number in a haul)	
Calanus cristatus	*Calanus plumchrus*	*Calanus finmarchicus*	*Metridia lucens*	*Eucalanus bungii bungii*	Euphausiid	Amphipod	*Sagitta*	*Aglantha*	Others
0	4658	0	5603	0	33	98	65		
654	28912	280	108912	9544	70	1192	1962	5	
1990	65108	0	10400	4157	43	865	476		
2553	309301	0	19445	15562	3526	2186	972	1	
906	164226	0	53132	15698	27472	8604	8075	10	
3500	56755	4830	84337	13887	3020	6151	2302	2	1 Squid
948	27194	1262	575494	1881	3261	13281	2684		
1722	56552	2759	534483	1378	137	1982	1465		
74	0	731086	115056	0	112	524	412		
0	0	688608	372658	0	38481	506	4178		
0	52342	10706	38067	0	596	6617	261		1 Jellyfish
0	4922	739	2462	0	123	3785	0		1 Jellyfish
0	21939	442	442	27	55	2490	55		4 Jellyfish
3826	13310	0	10837	757	119	4183	518	1	
778	52148	0	116148	296	111	1292	2380	2	
268	45563	0	64636	629	132	3900	4640	2	4 Shrimps
290	76387	0	119742	0	94	5161	419	1	
584	133299	0	78444	4047	78	2645	700	1	1 Shrimp
2157	85381	0	0	717	44	0	2157		
238	52063	0	79	2520	238	40	0	1	
105	59508	0	562	3370	175	70	877		
187	6450	0	6542	467	47	94	280		
38	14600	0	20684	302	190	38	1650		
1470	210000	0	4666	333	0	584	1415		
123	106666	0	21069	989	0	576	1396		

Table 20.

Cruise	Station	Position	Ship's date	Ship's time	Wire run out (m)	Wire angle	Estimated depth of haul (m)	Revolutions of flow-meter	Volume of water filtered (m^3)	Displacement of sample per 1000m^3 (cc)	Wet weight of sample per 1000m^3 (gr)
6(3)	Ho 51	52°27′N 151°02′E	Aug. 12	0620	150	16	144	832	23.2	517	470
	Ho 52	53°25′N 152°50′E	12	1840	150	15	145	864	24.1	664	726
	Ho 53	54°29′N 154°40′E	13	0640	150	12	147	882	24.6	528	452
	Ho 54	54°00′N 155°06′E	13	1920	100	16	96	458	15.9	378	422
	Ho 55	52°26′N 154°50′E	14	1940	150	68	56	961	26.8	1866	1347
	Ho 56	51°06′N 154°34′E	15	1030	150	27	134	1075	30.0	136	147
	Ho 57	50°31′N 154°30′E	16	1620	150	5	149	812	22.7	397	406
	Ho 58	50°29′N 153°50′E	17	1340	150	49	98	1118	31.2	462	449
	Ho 59	50°34′N 154°09′E	18	1700	150	18	143	910	25.4	197	182
	Ho 60	50°36′N 155°10′E	19	1300	150	17	143	858	24.0	417	275
	Ho 61	49°26′N 152°35′E	20	1840	150	8	149	830	23.2	175	155
	Ho 62	48°22′N 150°40′E	21	0630	150	11	147	953	26.6	452	452
	Ho 63	47°39′N 148°56′E	21	1830	150	14	146	780	21.8	505	376
	Ho 64	46°36′N 147°07′E	22	0630	150	31	129	1050	29.3	68	50
	Ho 65	45°57′N 144°57′E	22	1840	150	38	118	935	26.1	115	96

Revolutions of flow-meter without net for 150 m vertical haul:

Flow-meter TSK 217: 836 revol.

(Continued)

Dominant organisms (Individual number in 1000m^3)								Unusual large organisms removed before volume and weight measurements (number in a haul)	
Calanus cristatus	*Calanus plumchrus*	*Calanus finmarchicus*	*Metridia lucens*	*Eucalanus bungii bungii*	Euphausiid	Amphipod	*Sagitta*	*Aglantha*	Others
690	87586	0	3100	1742	0	733	3880		
83	4672	0	86307	1350	0	997	2321		
163	10406	132032	390243	1300	82	1950	1992		
0	3020	163800	72500	0	2070	310	71800		2 Jellyfish
290	169200	13290	89552	1155	19120	11050	12230		
801	11730	801	68800	1199	1300	5300	1900	3	3 Squids
396	80000	0	33100	8130	2600	1582	5900		
96	98200	0	28200	2562	3910	3559	3529		1 Squid
433	43590	0	44150	4722	1563	669	5078		
958	14610	0	70000	22350	1750	2000	3000		
1811	5695	0	128200	1725	818	2802	1423		1 *Clione*
902	85500	0	34400	1205	827	1580	5273	1	
1925	50650	0	137000	7340	91	1467	4960	5	
34	2998	1260	25620	272	170	3310	306	1	
460	5675	766	9580	613	383	7820	959		

9. Data on Plankton Sampling Made above, within and below the Sonic Scattering Layer

（音波拡乱層の上中下よりのプランクトン採集記録）

Three to four conical plankton nets, each 35 cm × 100 cm, made of bolting silk GG 54, having approximately 0.33 mesh aperture, were attached on a single wire rope at different positions respectively. These nets were towed horizontally at low speed through different levels of the sea from the surface to about 40 meter depth. The positions of the nets correspond to the levels, respectively above, within and below the scattering layer observed by echo-sounding.

The nets were not equipped with flow-meter.

Wet weight of samples was estimated, and dominant forms contained in the samples were recorded.

The work at sea was carried out by T. Maeda and S. Mishima and processing in the laboratory was made by T. Maeda and M. Ueno.

Table 21. Data on plankton sampling made above, within and below the sonic scattering

No. of station	Corresponding hydrographic station	Position		Date and time (J. C. T.)		Depth of scattering layer observed by echo-sounding (m)	Speed of net tow (knot)
		Lat.	Long.	Date	Time		
1	Ho 32	51°45′N	155°36′E	July 13	1900～1910	20	1.0
2	Ho 34	54°15′N	154°40′E	July 15	1848～1900	20	1.0
3	Ho 35	55°52′N	154°52′E	July 16	0627～0637	20～30	0.6
4	Ho 36	56°20′N	151°49′E	July 17	0650～0700	23	0.6
5	Ho 37	56°20′N	150°04′E	July 17	1941～1951	0～10, 18～23, 33～37	0.6
6	Ho 41	55°00′N	144°05′E	July 20	1020～1035	10	0.6
7	Ho 42	55°00′N	146°03′E	July 20	2001～2011	18～24	0.6
8	Ho 49	49°14′N	147°14′E	Aug. 10	0700～0710	20～40	0.6
9	Ho 53	54°29′N	154°40′E	Aug. 13	0650～0700	0～40	1.8
10	Ho 54	54°00′N	155°06′E	Aug. 13	1950～2000	12～16, 24～30	1.5

layer in the "Hokusei Maru" cruise 6 (2-3) to the Okhotsk Sea in July–August 1959

Depth of net estimated by length and angle of rope (m)	Wet weight of samples in a tow (gr)	Dominant forms in samples
0	1.2	*Eucalanus bungii*, *Themisto* sp.
20	20.5	*Pseudocalanus minutus*
40	9.7	*Calanus plumchrus*, *Pseudocalanus minutus*
0	1.5	*Metridia lucens*
19	60.2	*Pseudocalanus minutus*, *Calanus plumchrus*
43	40.7	*Calanus plumchrus*
14	11.8	*Calanus plumchrus*
26	81.4	*Calanus plumchrus*
8	14.3	*Calanus plumchrus*, *Pseudocalanus minutus*
23	0.1	*Calanus plumchrus*
38	11.4	*Calanus plumchrus*, *Pseudocalanus minutus*
10	7.7	*Pseudocalanus minutus*
20	2.4	*Pseudocalanus minutus*, *Themisto* sp.
35	3.1	*Pseudocalanus minutus*
10	31.8	Diatoms, *Calanus plumchrus*
20	13.3	Diatoms, *Calanus plumchrus*
30	5.4	*Pseudocalanus minutus*, *Calanus plumchrus*
20	113.9	Diatoms, *Calanus plumchrus*
30	70.9	Diatoms
40	38.1	Diatoms
15	42.8	*Calanus plumchrus*
30	38.6	*Calanus plumchrus*
45	36.1	*Calanus plumchrus*
8	4.7	*Sagitta elegans*, *Pseudocalanus minutus*
22	37.6	*Calanus plumchrus*
41	57.4	*Calanus plumchrus*
15	56.5	*Calanus plumchrus*
30	39.1	Diatoms
40	28.2	*Calanus plumchrus*, Diatoms

Table 21.

No. of station	Corresponding hydrographic station	Position		Date and time (J. C. T.)		Depth of scattering layer observed by echo-sounding (m)	Speed of net tow (knot)
		Lat.	Long.	Date	Time		
11	Ho 57	50°31′N	154°30′E	Aug. 16	1650～1700	0～13, 25～32	1.5
12	Ho 59	50°34′N	155°09′E	Aug. 18	1000～1710	7～12	1.5
13		50°42′N	154°54′E	Aug. 19	1535～1550	20～30, 35～43	1.5
14	Ho 62	48°22′N	150°40′E	Aug. 21	0710～0725	5～35	1.2
15	Ho 63	47°39′N	148°56′E	Aug. 21	1858～1908	0～20	1.5
16	Ho 65	45°57′N	144°57′E	Aug. 22	1900～1910	20～30	1.0

(Continued)

Depth of net estimated by length and angle of rope (m)	Wet weight of samples in a tow (gr)	Dominant forms in samples
0	54.5	*Calanus plumchrus*
10	88.2	*Calanus plumchrus*
30	13.2	*Calanus plumchrus*, *Pseudocalanus minutus*
50	7.7	*Calanus plumchrus*
0	2.7	*Sagitta elegans*, *Calanus plumchrus*
10	112.9	*Calanus plumchrus*
20	12.9	*Calanus plumchrus*, *Sagitta elegans*
40	5.8	*Pseudocalanus minutus*, *Calanus plumchrus*
0	0.9	*Pseudocalanus minutus*
15	3.1	*Pseudocalanus minutus*, Diatoms
25	57.6	*Calanus plumchrus*
45	10.3	Diatoms, *Calanus plumchrus*
0	0.9	Diatoms
10	60.5	*Calanus plumchrus*
25	62.9	*Calanus plumchrus*
50	13.0	*Metridia lucens*
0	12.0	*Calanus plumchrus*, *Sagitta elegans*
10	36.1	Diatoms, *Calanus plumchrus*
20	16.0	Diatoms, *Metridia lucens*
40	0.5	
0	3.9	*Themisto* sp.
15	1.5	*Pseudocalanus minutus*
25	11.1	Diatoms, *Calanus plumchrus*
50	4.4	*Pseudocalanus minutus*

10. Data on Plankton Collected with a Fish Larva Net
(稚魚ネット採集プランクトン記録)

A fish-larva net, 130 cm × 450 cm, conical, made of stramin in the anterior 300 cm, and of bolting silk GG 54 in the posterior 150 cm, was towed through approximately the surface water at a speed of about 2 knots for 10 minutes. The net was not equipped with flow-meter, so that the data are not available for exact quantitative studies.

Samplings were carried out at hydrographic stations as well as at about one hour after sunset while underway.

Fish larvae contained in the samples were picked up before the measurement of weight. The data on fish larvae are given on pp. 186-193.

Wet weight of the samples was obtained by weighing the materials left on the filtering disc of the aspiration filtering apparatus.

The measurement was made at the Plankton Laboratory of the University.

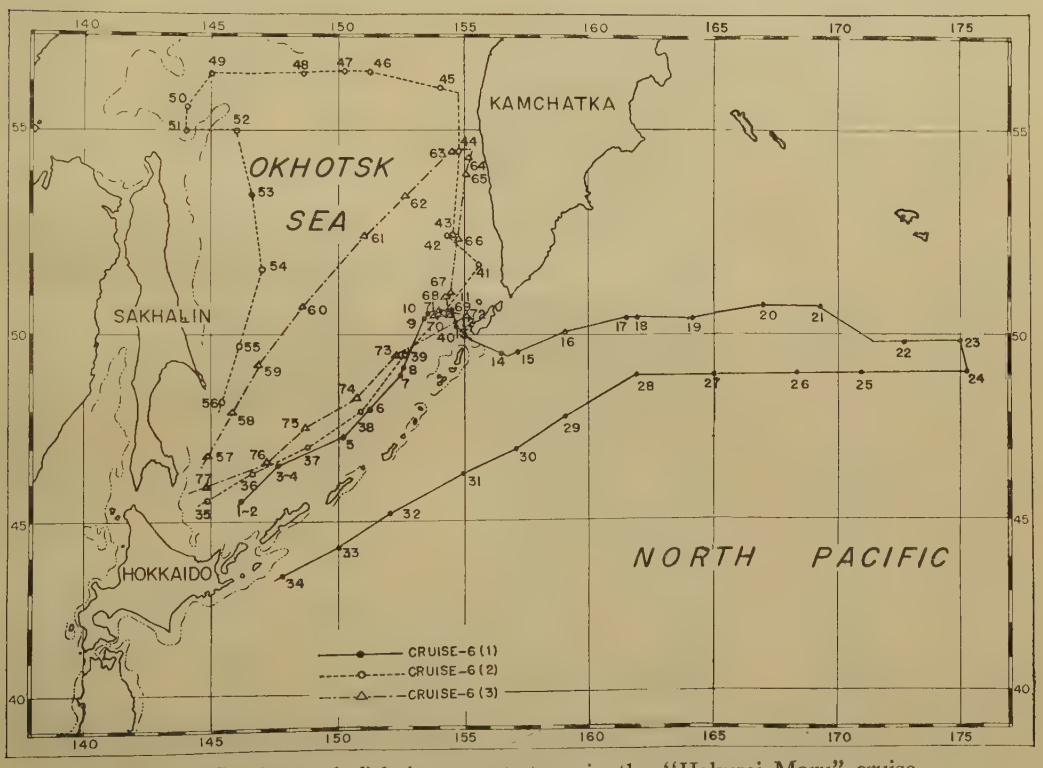

Fig. 9. Stations of fish-larva net tow in the "Hokusei Maru" cruise 6 (1-3) to the North Pacific and Okhotsk Sea in June-August 1959

Table 22. Plankton data (130 cm × 450 cm, fish larva net) in the "Hokusei

Cruise	No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Wet weight of samples in a tow (gr)
	1	Ho 1	45°33′N 146°05′E	June 5	1730	13.6
	2		45°33′N 146°05′E	5	2000	104.0
	3	Ho 2	46°31′N 147°45′E	6	1645	3.1
	4		46°31′N 147°45′E	6	1945	252.8
	5		47°22′N 150°16′E	7	1910	50.8
	6		47°59′N 151°20′E	8	1910	189.6
	7	Ho 4	48°55′N 152°30′E	9	1300	5.0
	8		49°08′N 152°40′E	9	1900	103.2
	9	Ho 5	50°30′N 153°28′E	10	1700	13.4
	10		50°34′N 153°30′E	10	1930	68.0
	11	Ho 6	50°44′N 154°24′E	11	2030	43.2
	12		50°38′N 154°42′E	12	2030	24.2
	13		50°26′N 154°20′E	13	2030	22.0
	14		49°39′N 156°44′E	14	1900	454.4
6(1)	15		49°40′N 157°12′E	14	2030	87.6
	16	Ho 8	50°07′N 159°05′E	15	0700	110.4
	17	Ho 9	50°27′N 161°26′E	15	1900	3.9
	18		50°27′N 161°48′E	15	2030	11.6
	19	Ho 10	50°27′N 164°04′E	16	0700	1.7
	20		50°42′N 166°51′E	16	2000	103.6
	21	Ho 12	50°42′N 169°10′E	17	0700	0.1
	22	Ho 13	49°51′N 172°45′E	18	1900	31.6
	23	Ho 14	49°51′N 175°00′E	19	0540	19.4
	24	Ho 15	49°07′N 175°15′E	19	1310	59.2
	25	Ho 16	49°07′N 170°54′E	20	0705	5.4
	26	Ho 17	49°07′N 168°11′E	20	1910	35.6
	27	Ho 18	49°00′N 164°54′E	21	1940	25.2
	28	Ho 19	49°00′N 161°47′E	22	1930	7.0
	29	Ho 20	47°54′N 159°05′E	23	1940	296.8

Maru" cruise 6 (1-3) to the North Pacific and Okhotsk Sea in June-August 1959

Dominant forms in samples	Number of larger animals than 2 cm which were removed before weighing
Diatoms	
Themisto sp.	
Pseudocalanus minutus	
Pseudocalanus minutus, *Themisto* sp., Euphausiid	
Pseudocalanus minutus, *Themisto* sp.	
Themisto sp., Euphausiid, *Pseudocalanus minutus*	
Themisto sp. (small-sized), Euphausiid	
Themisto sp. (small-sized), *Sagitta elegans*	1 jellyfish
Diatoms, *Psudocalanus minutus*	
Themisto sp., *Sagitta elegans*	
Themisto sp. (small-sized)	
Themisto sp. (small-sized)	
Themisto sp., *Sagitta elegans*	
Calanus plumchrus, *Sagitta elegans*	
Calanus plumchrus, *Themisto* sp., *Sagitta elegans*	
Calanus plumchrus, *Sagitta elegans*	
Calanus plumchrus, *Limacina helicina*	
Themisto sp. (small-sized), Diatoms	
Diatoms	
Themisto sp., Squid larva	7 jellyfish
Themisto sp.	
Eucalanus bungii, *Calanus plumchrus*, *Themisto* sp.	
Themisto sp. *Eucalanus bungii*, *Calanus plumchrus*	
Diatoms	
Diatoms, *Themisto* sp., *Pseudocalanus minutus*	
Themisto sp., *Pseudocalanus minutus*	
Themisto sp., *Limacina helicina*	
Aglantha digitale, *Sagitta elegans*, *Themisto* sp.	

Table 22.

Cruise	No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Wet weight of samples in a tow (gr)
6(1)	30	Ho 21	47°06′N 157°02′E	June 24	0705	12.4
	31	Ho 22	46°22′N 154°45′E	24	1935	96.0
	32	Ho 23	45°14′N 152°05′E	25	1850	22.0
	33	Ho 24	44°22′N 150°00′E	26	0650	905.6
	34		43°27′N 147°49′E	26	1930	120.0
6(2)	35		45°38′N 144°52′E	July 9	1945	15.8
	36	Ho 27	46°19′N 146°52′E	10	0720	2.7
	37	Ho 28	47°08′N 148°57′E	10	2000	200.0
	38	Ho 29	47°59′N 150°58′E	11	0650	9.8
	39	Ho 30	49°32′N 152°48′E	12	0650	164.0
	40	Ho 31	50°39′N 154°23′E	12	1930	556.8
	41	Ho 32	51°45′N 155°36′E	13	1940	74.0
	42	Ho 33	52°33′N 154°25′E	14	1330	3.6
	43		52°33′N 154°37′E	14	2000	444.8
	44		54°24′N 154°43′E	15	2015	362.4
	45		55°53′N 154°07′E	16	2030	175.2
	46	Ho 36	56°20′N 151°49′E	17	0730	18.4
	47	Ho 37	56°20′N 150°04′E	17	2030	67.6
	48		56°18′N 146°27′E	18	2030	58.0
	49	Ho 39	56°15′N 145°00′E	19	1000	10.8
	50	Ho 40	55°39′N 144°05′E	19	2100	78.0
	51	Ho 41	55°00′N 144°05′E	20	1045	9.0
	52	Ho 42	55°00′N 146°03′E	20	2100	66.4
	53		53°28′N 146°37′E	21	2030	118.8
	54	Ho 44	51°41′N 147°11′E	22	2030	55.6
	55		49°39′N 146°12′E	23	2010	124.8
	56	Ho 46	48°19′N 145°30′E	24	0710	110.0

(Continued)

Dominant forms in samples	Number of larger animals than 2 cm which were removed before weighing
Diatoms	
Diatoms, *Themisto* sp.	
Themisto sp., Diatoms	
Calanus plumchrus	
Themisto sp.	
Pseudocalanus minutus, *Sagitta elegans*, *Themisto* sp. (small-sized)	
Zoea larva of crab, Small-sized copepods	
Themisto sp.	
Diatoms	
Themisto sp. (small-sized)	
Themisto sp.	
Themisto sp., Squid larva	
Themisto sp., Small-sized copepods	
Calanus plumchrus, *Themisto* sp.	
Small-sized copepods	
Calanus plumchrus, *Themisto* sp.	
Diatoms, *Themisto* sp. (small-sized)	
Jellyfish, *Themisto* sp.	
Themisto sp. (small-sized), Euphausiid	
Themisto sp., *Pseudocalanus minutus*	
Pseudocalanus minutus, *Themisto* sp., *Calanus plumchrus*	
Pseudocalanus minutus, *Themisto* sp.	
Diatoms, *Themisto* sp.	
Themisto sp. (small-sized), *Pseudocalanus minutus*	
Themisto sp., *Pseudocalanus minutus*, Squid larva	
Themisto sp., *Pseudocalanus minutus*, Squid larva	
Diatoms	

Table 22.

Cruise	No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Wet weight of samples in a tow (gr)
	57	Ho 47	46°55′N 144°54′E	Aug. 9	0740	1.2
	58	Ho 48	47°56′N 145°58′E	9	1940	118.0
	59	Ho 49	49°14′N 147°14′E	10	0720	1.5
	60	Ho 50	50°43′N 148°54′E	10	2015	97.6
	61	Ho 51	52°27′N 151°02′E	12	0645	2.2
	62	Ho 52	53°25′N 152°50′E	12	1900	611.2
	63	Ho 53	54°29′N 154°40′E	13	0705	1.5
	64		54°25′N 155°05′E	13	1030	2.2
	65	Ho 54	54°00′N 155°06′E	13	1950	198.0
	66	Ho 55	52°26′N 154°50′E	14	1938	142.4
6(3)	67	Ho 56	51°06′N 154°34′E	15	1058	2.7
	68		51°04′N 154°26′E	15	1920	619.2
	69	Ho 57	50°31′N 154°30′E	16	1900	720.0
	70	Ho 58	50°29′N 153°50′E	17	1900	395.2
	71	Ho 59	50°34′N 154°09′E	18	1900	1564.8
	72	Ho 60	50°36′N 155°10′E	19	1840	40.8
	73	Ho 61	49°26′N 152°35′E	20	1850	116.8
	74	Ho 62	48°22′N 150°40′E	21	0735	14.0
	75	Ho 63	47°39′N 148°56′E	21	1900	170.0
	76	Ho 64	46°36′N 147°07′E	22	0650	3.7
	77	Ho 65	45°57′N 144°57′E	22	1850	28.2

(Continued)

Dominant forms in samples	Number of larger animals than 2 cm which were removed before weighing
Themisto sp.	
Pseudocalanus minutus, *Themisto* sp.	
Pseudocalanus minutus	
Pseudocalanus minutus, *Themisto* sp., *Sagitta elegans*	
Pseudocalanus minutus	
Themisto sp.	
Pseudocalanus minutus, Squid larva	
Pseudocalanus minutus, *Sagitta elegans*, Megalopa larva of crab	
Calanus plumchrus	
Themisto sp.	
Pseudocalanus minutus	
Themisto sp., Megalopa larva of crab, Squid larva	2 Squids
Calanus plumchrus	2 Squids
Calanus plumchrus, *Themisto* sp.	
Calanus plumchrus, *Themisto* sp., Megalopa larva of crab	
Pseudocalanus minutus, *Themisto* sp., Megalopa larva of crab	3 Jellyfish
Pseudocalanus minutus, *Themisto* sp., *Sagitta* sp.	
Pseudocalanus minutus	
Pseudocalanus minutus, *Sagitta elegans*, Euphausiid	
Pseudocalanus minutus, *Sagitta elegans*	
Themisto sp. (small-sized), *Sagitta elegans*	

12. Data on Fish Larvae Collected with a Fish Larva Net
(稚魚ネット採集稚魚記録)

Specimens of fish larvae were picked up from the mixed plankton samples which were collected by surface tow with a 130 cm fish larva net (ref. to pp. 179–185).

Identification of fish larvae was made by S. I. Sato and K. Kobayashi at the Laboratory of Ichthyology of the University.

Table 23. Data on collection of fish larvae in the "Hokusei Maru" cruise 6 (1–3) to the North Pacific and Okhotsk Sea in June–August 1959

No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals	Range of total length (mm)
1	Ho 1	45°33′N 146°05′E	June 5	1730	No fish-larva		
2		45°33′N 146°05′E	June 5	2000	*Ammodytes hexapterus* PALLAS	4	18.0～39.3
					Hexagrammos	1	35.0
					Hemilepidotus	6	27.0～39.0
					Unidentified	3	19.0～30.0
					Unidentified	2	9.0
3	Ho 2	46°31′N 147°45′E	June 6	1645	*Hemilepidotus*	1	19.0
4		46°31′N 147°45′E	June 6	1945	*Hemilepidotus*	3	17.0～17.5
					Unidentified	26	11.0～14.5
5		47°22′N 150°16′E	June 7	1910	Lumpenidae	10	20.5～21.0
					Hexagrammos	3	33.0～35.0
					Hemilepidotus	14	16.5～28.5
					Liparidae	1	21.8
					Unidentified	3	7.0～ 8.0
6		47°59′N 151°20′E	June 8	1910	*Bathymaster*	1	47.7
					Lumpenidae	21	18.0～23.0
					Hemilepidotus	28	14.0～28.5
7	Ho 4	48°55′N 152°30′E	June 9	1300	Lumpenidae	4	
					Hemilepidotus	3	13.0～23.5
8		49°08′N 152°40′E	June 9	1907	Lumpenidae	53	20.0～22.0
					Hemilepidotus	3	26.0～28.0

Table 23. (Continued)

No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals	Range of total length (mm)
9	Ho 5	50°30′N	June 10	1700	Lumpenidae	2	20.5
		153°28′E			*Hexagrammos*	1	29.0
					Hemilepidotus	1	
					Fish-egg		
					Fish-egg		
10		50°34′N	June 10	1930	Lumpenidae	8	20.0
		153°30′E			*Hemilepidotus*	1	26.0
11	Ho 6	50°44′N	June 11	2030	Lumpenidae	4	17.0～20.0
		154°24′E			*Hemilepidotus*	1	26.0
					Unidentified	5	8.0～ 9.0
					Unidentified	1	11.0
					Fish-egg		
12		50°38′N	June 12	2030	Lumpenidae	11	19.0～22.0
		154°42′E			*Hemilepidotus*	10	28.0～30.0
					Liparidae	1	9.5
					Unidentified	30	6.5～ 9.0
					Unidentified	1	10.0
					Unidentified	1	8.0
					Fish-egg		
13		50°26′N	June 13	2030	Lumpenidae	11	18.0～23.0
		154°20′E			*Hemilepidotus*	80	17.0～31.0
					Unidentified	3	7.5～ 8.0
					Unidentified	5	11.5～16.0
					Unidentified	2	8.0
					Fish-egg		
					Fish-egg		
14	Ho 7	49°39′N	June 14	1900	*Bathymaster*	1	42.0
		156°44′E			Lumpenidae	8	
					Hexagrammos	5	31.5～39.0
					Hemilepidotus	24	13.5～28.5
					Gadidae	2	7.5
					Unidentified	7	7.0～ 8.0

Table 23. (Continued)

No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals	Range of total length (mm)
15		49°40′N 157°12′E	June 14	2030	*Lampanyctus leucopsarus* (EIGENMANN & EIGENMANN)	1	140.0
					Bathymaster	1	42.9
					Ptilichthys goodei BEAN	1	66.0
					Hemilepidotus	548	18.0~31.5
					Gadidae	1	9.0
					Unidentified	29	8.0
16	Ho 8	50°07′N 159°05′E	June 15	0700	*Hexagrammos*	1	38.0
					Hemilepidotus	14	28.0~30.0
					Gadidae	1	6.5
					Unidentified	2	8.0~ 8.5
17	Ho 9	50°27′N 161°26′E	June 15	1900	Lumpenidae	1	
					Pleurogrammus monopterygius (PALLAS)	32	21.0~44.0
					Unidentified	1	
18		50°27′N 161°48′E	June 15	2030	*Bathymaster*	1	44.3
					Pleurogrammus monopterygius (PALLAS)	77	24.0~47.0
					Hemilepidotus	51	23.5~32.5
19	Ho 10	50°27′N 164°04′E	June 16	0700	*Pleurogrammus monopterygius* (PALLAS)	4	
					Hemilepidotus	4	26.0~30.5
20		50°42′N 166°51′E	June 16	2000	*Bathymaster*	4	42.9~44.9
					Ammodytes hexapterus PALLAS	1	36.9
					Lumpenidae	27	13.0~37.0
					Anoplopoma fimbria (PALLAS)	1	ca 11.0
					Pleurogrammus monopterygius (PALLAS)	3	28.0~33.5
					Hemilepidotus	63	17.0~31.5
					Unidentified	3	10.0~10.5
21	Ho 12	50°42′N 169°10′E	June 17	0700	*Hemilepidotus*	1	24.0
22	Ho 13	49°51′N 172°45′E	June 18	1900	*Bathymaster*	1	41.7
					Ammodytes hexapterus PALLAS	2	29.6~32.4
					Lumpenidae	6	30.0~38.5
					Anoplopoma fimbria (PALLAS)	3	12.5~14.5
					Hexagrammos	2	21.0~21.5
					Hemilepidotus	39	15.0~29.5
					Myoxocephalus	2	15.5~16.0

Table 23. (Continued)

No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals	Range of total length (mm)
23	Ho 14	49°51′ N 175°00′ E	June 19	0540	*Pleurogrammus monopterygius* (PALLAS) *Hexagrammos*	2 6	25.0~40.0 14.0~20.5
24	Ho 15	49°07′ N 175°15′ E	June 19	1310	*Pleurogrammus monopterygius* (PALLAS) *Hexagrammos* *Hemilepidotus* Unidentified	17 3 1 1	31.0~46.0 18.5 18.0 10.0
25	Ho 16	49°07′ N 170°54′ E	June 20	0705	*Pleurogrammus monopterygius* (PALLAS)	4	25.0~46.0
26	Ho 17	49°07′ N 168°11′ E	June 20	1910	Lumpenidae *Pleurogrammus monopterygius* (PALLAS) *Hexagrammos* *Hemilepidotus*	3 12 1 86	34.5~39.5 26.5~49.0 22.0 15.0~30.5
27	Ho 18	49°00′ N 164°54′ E	June 21	1940	*Bathymaster* Lumpenidae *Pleurogrammus monopterygius* (PALLAS) *Hemilepidotus*	1 1 4 129	49.4 32.0 27.0~31.0 14.0~32.0
28	Ho 19	49°00′ N 161°47′ E	June 22	1930	*Pleurogrammus monopterygius* (PALLAS) *Hemilepidotus*	17 7	25.5~43.5 20.5~29.0
29	Ho 20	47°54′ N 159°05′ E	June 23	1940	*Anoplopoma fimbria* (PALLAS) *Pleurogrammus monopterygius* (PALLAS) *Hexagrammos* *Hemilepidotus* Fish-egg	1 5 1 76	ca 11.5 40.0~43.0 34.0 21.0~36.5
30	Ho 21	47°06′ N 157°02′ E	June 24	0705	*Pleurogrammus monopterygius* (PALLAS) *Hemilepidotus*	1 19	38.0 24.0~32.0
31	Ho 22	46°22′ N 154°45′ E	June 24	1935	Lumpenidae *Hemilepidotus*	31 2	21.0~28.5
32	Ho 23	45°14′ N 152°05′ E	June 25	1850	Lumpenidae *Pleurogrammus monopterygius* (PALLAS) *Hemilepidotus*	34 1 1	25.5~28.0 38.5 17.0
33	Ho 24	44°22′ N 150°00′ E	June 26	0650	Lumpenidae	2	
34		43°27′ N 147°49′ E	June 26	1930	Lumpenidae	2	

Table 23. (Continued)

No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals	Range of total length (mm)
35		45°38′N 144°52′E	July 9	1945	*Ammodytes hexapterus* PALLAS	21	17.0~38.0
					Hemilepidotus	1	28.0
					Blepsias bilobus CUVIER & VALENCIENNES	3	32.4~40.3
					Unidentified	1	11.0
36	Ho 27	46°19′N 146°52′E	July 10	0720	*Ammodytes hexapterus* PALLAS	2	14.0
37	Ho 28	47°08′N 148°57′E	July 10	2000	*Ammodytes hexapterus* PALLAS	34	23.0~37.0
					Lumpenidae	1	32.0
					Hemilepidotus	2	25.5~30.0
38	Ho 29	47°59′N 150°58′E	July 11	0650	No fish-larva		
39	Ho 30	49°32′N 152°48′E	July 12	0650	*Hexagrammos*	1	39.0
40	Ho 31	50°39′N 154°23′E	July 12	1930	*Ptilichthys goodei* BEAN	1	86.5
					Lumpenidae	198	23.5~34.0
					Hemilepidotus	12	24.5~30.5
					Myoxocephalus	1	18.0
					Gadidae	2	11.0~11.5
					Unidentified	2	32.0
41	Ho 32	51°45′N 155°36′E	July 13	1940	Lumpenidae	20	28.0~31.0
					Hemilepidotus	1	29.0
					Eumicrotremus orbis orbis (GÜNTHER)	2	31.6~33.5
					Unidentified	16	21.0~30.5
42	Ho 33	52°33′N 154°25′E	July 14	1330	*Hexagrammos*	2	36.0~40.0
43		52°33′N 154°37′E	July 14	2000	*Ptilichthys goodei* BEAN	1	81.5
					Hemilepidotus	1	20.0
					Myoxocephalus	1	14.0
					Liparidae	1	12.6
					Pleuronectidae	4	10.0~10.5
44		54°24′N 154°43′E	July 15	2015	No fish-larva		
45		55°53′N 154°07′E	July 16	2030	Gadidae	1	9.5

Table 23. (Continued)

No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals	Range of total length (mm)
46	Ho 36	56°20′N 151°49′E	July 17	0730	No fish-larva		
47	Ho 37	56°20′N 150°04′E	July 17	2030	No fish-larva		
48		56°18′N 146°27′E	July 18	2030	Lumpenidae	12	27.0～36.5
49	Ho 39	56°15′N 145°00′E	July 19	1000	Lumpenidae	5	22.0～30.0
50	Ho 40	55°39′N 144°05′E	July 19	2100	Lumpenidae	1	29.0
					Cottidae	1	16.5
					Theragra chalcogramma (PALLAS)	4	19.0～27.0
51	Ho 41	55°00′N 144°05′E	July 20	1045	*Ammodytes hexapterus* PALLAS	1	26.0
					Theragra chalcogramma (PALLAS)	2	
					Unidentified	1	21.0
52	Ho 42	55°00′N 146°03′E	July 20	2100	Unidentified	2	27.5
53		53°28′N 146°37′E	July 21	2030	Lumpenidae	20	
54	Ho 44	51°41′N 147°11′E	July 22	2030	Lumpenidae	7	
55		49°39′N 146°12′E	July 23	2010	*Ammodytes hexapterus* PALLAS	20	38.0～46.0
56	Ho 46	48°19′N 145°30′E	July 24	0710	*Ammodytes hexapterus* PALLAS	3	39.0～43.0
57	Ho 47	46°55′N 144°54′E	Aug. 9	0740	No fish-larva		
58	Ho 48	47°56′N 145°58′E	Aug. 9	1940	No fish-larva		
59	Ho 49	49°14′N 147°14′E	Aug. 10	0720	No fish-larva		
60	Ho 50	50°43′N 148°54′E	Aug. 10	2015	No fish-larva		

Table 23. (Continued)

No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals	Range of total length (mm)
61	Ho 51	52°27′N 151°02′E	Aug. 12	0645	No fish-larva		
62	Ho 52	53°25′N 152°50′E	Aug. 12	1900	No fish-larva		
63	Ho 53	54°29′N 154°40′E	Aug. 13	0705	No fish-larva		
64		54°25′N 155°05′E	Aug. 13	1030	Pleuronectidae *Theragra chalcogramma* (PALLAS) Fish-egg	6 2	7.0~19.0 21.1~22.1
65	Ho 54	54°00′N 155°06′E	Aug. 13	1950	Pleuronectidae Pleuronectidae Gadus macrocephalus TILESIUS *Theragra chalcogramma* (PALLAS) Unidentified	153 1 1 1 123	6.4~28.0 10.0 71.2 40.3 10.0~24.0
66	Ho 55	52°26′N 154°50′E	Aug. 14	1938	*Ammodytes hexapterus* PALLAS *Ptilichthys goodei* BEAN Pleuronectidae	2 1 2	51.4~57.4 140.5
67	Ho 56	51°06′N 154°34′E	Aug. 15	1058	No fish-larva		
68		51°04′N 154°26′E	Aug. 15	1920	*Ammodytes hexapterus* PALLAS *Ptilichthys goodei* BEAN Lumpenidae *Hexagrammos* *Podothecus gilberti* (COLLETT) *Theragra chalcogramma* (PALLAS) Unidentified	1 1 10 1 1 1 1	60.5 124.1 34.0~36.5 48.6 25.6 25.8 13.0
60	Ho 57	50°31′N 154°30′E	Aug. 16	1900	Lumpenidae *Theragra chalcogramma* (PALLAS)	2 1	8.0~ 9.0 28.8
70	Ho 58	50°29′N 153°50′E	Aug. 17	1900	*Ptilichthys goodei* BEAN *Blepsias bilobus* CUVIER & VALENCIENNES Unidentified	4 1 1	126.4~150.1 62.8 ca 15.0

Table 23. (Continued)

No. of collection	Corresponding hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals	Range of total length (mm)
*70′		50°29′N 153°50′E	Aug. 17	2020	*Pleurogrammus azonus* JORDAN & METZ	2	170.0～190.0
					Hexagrammos octogrammus (PALLAS)	4	54.5～62.7
					Blepsias bilobus CUVIER & VALENCIENNES	1	54.2
71	Ho 59	50°34′N 154°09′E	Aug. 18	1900	*Ptilichthys goodei* BEAN	1	159.4
72	Ho 60	50°36′N 155°10′E	Aug. 19	1840	No fish-larva		
73	Ho 61	49°26′N 152°35′E	Aug. 20	1850	*Ptilichthys goodei* BEAN	1	120.3
74	Ho 62	48°22′N 150°40′E	Aug. 21	0735	No fish-larva		
75	Ho 63	47°39′N 148°56′E	Aug. 21	1900	*Sebastes taczanowskii* (STEINDACHNER)	3	32.0～32.9
76	Ho 64	46°36′N 147°07′E	Aug. 22	0650	*Sebastes taczanowskii* (STEINDACHNER)	1	30.4
77	Ho 65	45°57′N 144°57′E	Aug. 22	1850	*Cololabis saira* (BREVOORT)	1	65.5
					Gasterosteus aculeatus aculeatus (LINNÉ)	2	29.5～36.2
					Sebastes taczanowskii (STEINDACHNER)	1	28.0

* Differing from regular samplings, the net was towed for one hour.

12. Data on Fatty Constituents of Plankton Organisms
(プランクトン油脂成分記録)

1. Extraction of fatty material from plankton organisms

Samples were collected with a 130 cm fish larva net (ref. to p. 179) by making surface horizontal tow for 30 to 60 minutes.

Samplings were carried out at 4 stations where plankton occurred in abundance.

Aceton as much as the size of samples was added into the samples immediately after the collection.

Inthe laboratory the samples were derived of aceton by filtering, and residuals were extracted by another aceton in a Soxhlet apparatus. All the aceton solution was expelled of solvent, and the residual was extracted with ether. The fatty material was obtained from the ether solution.

Samplings at sea were carried out by T. Maeda and analysis in the laboratory was made by M. Yamada of the University.

Table 24. Data on collection, wet weight and oil yield of samples

No. of collection	Position	Date	Time	Duration of tow (min.)	Chief component in sample	Wet weight of sample in a tow (gr)	Oil yield	
							gr	%
1	51°04′N 154°26′E	Aug. 15	1845–1945	60	*Calanus plumchrus*	1200	64.2	5.3
2	50°30′N 154°30′E	16	1820–1850	30	*Calanus plumchrus*	1330	110.4	8.3
3	50°30′N 154°30′E	16	1905–1945	30	*Calanus plumchrus*	1330	125.9	9.5
4	50°29′N 153°50′E	17	1915–2015	60	*Calanus plumchrus*	1240	47.1	3.8

2. General character of plankton oil

Table 25. General character of plankton oil*

Sample	Aceton sol. %	Color	d_4^{15}	n_D^{20}	Unsap. matter %
Calanus plumchrus	91.8–98.6	red-brown or dark red	0.8824–0.8896	1.4694–1.4779	42.91–49.41
Parathemisto japonica	92.5–98.9	dark red-brown	0.9305–0.9484	1.4775–1.4818	14.22–23.94

Sample	Sap. value	Iod. value	Acid value	Fatty acid		
				Neut. value	Iod. value	Ether insol. bromide %
Calanus plumchrus	115.4–117.5	135.8–166.0	9.0–21.2	198.3–214.6	151.7–211.7	54.51–75.02
Parathemisto japonica	150.3–167.2	180.6–212.0	26.9–59.9	186.1–192.8	200.8–225.8	67.01–86.15

* Analysis was made on samples collected in 1958 cruise.

3. Fatty acid composition of the oil of *Parathemisto japonica*

Table 26. Fatty acid composition of the oil of *Parathemisto japonica**

Saturated acids, wt. %		Unsaturated acids, wt. %	
C_{14}	7	C_{14} (-2.4H)	1
C_{16}	12.5	C_{16} (-2.5H)	5
C_{18} and $C_{>18}$	5.5	C_{18} (-4.4H)	11
		C_{20} (-6.9H)	37
Total saturated	25	C_{22} and $C_{>22}$ (-9.0H)	21
		Total unsaturated	75

* Analysis was made on samples collected in 1958 cruise.

13. Data on Salmon Gill-Net Fishing
(鮭鱒流網試験記録)

Operation was supervised by captain and deck officers, and all hands of crew and cadets were engaged in the work.

The gill net is made of Amilan; each shackle of net is approximately 40.6 meters long and 6.3 meters deep.

Catch per one shackle of net of various mesh sizes was counted by research men aboard, M. Ueno and T. Maeda.

Fish specimens taken with gill net are:

Oncorhynchus nerka (*Walbaum*), Sockeye salmon, Red salmon, Blue-back salmon, Sukkegh salmon, ベニマス, ベニサケ, ベニ

Oncorhynchus keta (*Walbaum*), Chum salmon, Dog salmon, Calico salmon, Keta salmon, サケ, シロサケ, シロ

Oncorhynchus gorbuscha (*Walbaum*), Pink salmon, Humpback salmon, カラフトマス, セッパリマス

Oncorhynchus tschawytscha (*Walbaum*), King salmon, Spring salmon, Chinock salmon, Typee salmon, Tchavike, マスノスケ

Oncorhynchus kisutch (*Walbaum*), Silver salmon, ギンマス, ギンサケ, ギン

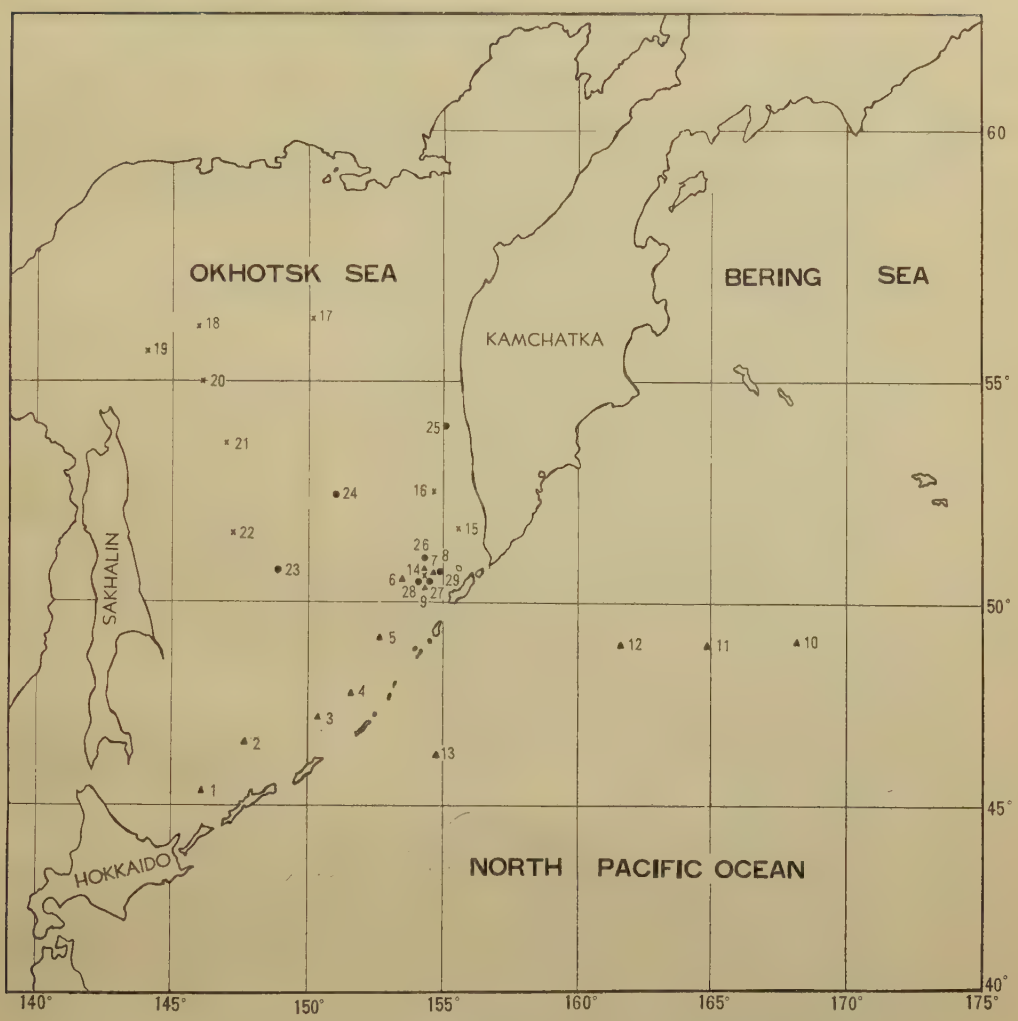

Fig. 10 Location of salmon gill-net set in the "Hokusei Maru" cruise 6 to the North Pacific and Okhotsk Sea in June–August 1959

▲ Cruise 6-1 (June 1959)
× Cruise 6-2 (July 1959)
● Cruise 6-3 (August 1959)

Table 27. Data on catch of salmon in the "Hokusei Maru" cruise

Cruise	No of fishing	Date and time (J.C.T.)				Position of net set		Direction of drift "toward"	Weather	Wind		Surface temperature (°C)	Colour of sea
		Net set		Net haul									
		Date	Time	Date	Time	Lat.	Long.			Direction	Force		
	1	06-05	1805	06-06	0320	45°25′N	146°04′E	45°	bc	S	2	5.5	5
	2	06-06	1800	06-07	0320	46°33′N	147°45′E	45°	b	SW	4	5.4	7
	3	06-07	1804	06-08	0308	47°12′N	150°25′E	65°	f	W	1	3.4	7
	4	06-08	1753	06-09	0240	47°48′N	151°37′E	330°	f	SE	3	3.6	
	5	06-09	1735	06-10	0238	49°09′N	152°40′E	220°	f	NNE	3	4.0	6
	6	06-10	1735	06-11	0340	50°34′N	153°31′E	135°	o	N	2	3.4	7
6(1)	7	06-11	1758	06-12	0340	50°44′N	154°24′E	115°	c	W	2	4.0	7
	8	06-12	1837	06-13	0330	50°38′N	154°42′E	240°	c	Calm		4.0	
	9	06-13	1736	06-14	0310	50°25′N	154°20′E	230°	f	NNW	4	4.8	7
	10	06-20	1737	06-21	0145	49°07′N	168°11′E	225°	r	ENE	3 or 4	5.8	6
	11	06-21	1737	06-22	0242	49°00′N	164°53′E	225°	c	ENE	4	5.8	5
	12	06-22	1846	06-23	0250	49°00′N	161°47′E	230°	bc	NE	3	5.5	5
	13	06-24	1641	06-25	0217	46°22′N	154°45′E	240°	c	E	2	5.5	
	14	07-12	1737	07-13	0245	50°38′N	154°22′E	100°	c	S	4	6.4	
	15	07-13	1700	07-14	0205	51°45′N	155°36′E	90°	c	SE	3	6.4	
	16	07-14	1635	07-15	0205	52°33′N	154°49′E	300°	c	Calm		7.4	
	17	07-17	1812	07-18	0227	56°20′N	150°04′E	80°	bc	SW	4	9.3	6
6(2)	18	07-18	2257	07-19	0255	56°15′N	145°56′E	60°	f	SW	4	8.7	6 or 7
	19	07-19	1816	07-20	0240	55°39′N	144°05′E	30°	b	S	2	8.9	6
	20	07-20	1804	07-21	0247	55°00′N	146°02′E	230°	b	SSW	2	6.6	5
	21	07-21	1908	07-22	0240	53°35′N	146°56′E	50°	c	S	3	8.9	4 or 5
	22	07-22	1807	07-23	0240	51°41′N	147°11′E	230°	b	NW	1	9.8	4
	23	08-10	1800	08-11	0310	50°43′N	148°54′E	50°	f	Calm		12.4	
	24	08-11	1805	08-12	0315	52°27′N	151°02′E	270°	f	NW	2	12.3	
	25	08-13	1800	08-14	0300	54°00′N	155°06′E	135°	c	S	1	15.9	
6(3)	26	08-15	1750	08-16	0330	51°04′N	154°24′E	270°	b	NW	3	8.9	6
	27	08-16	1715	08-17	0330	50°30′N	154°30′E	90°	f	SSW	1	8.8	6
	28	08-18	1730	08-19	0300	50°31′N	154°09′E	45°	f	S	2	10.5	5
	29	08-19	1645	08-20	0310	50°42′N	154°54′E	90°	f	SSW	1	9.2	6

* One shackle of this net was 30 meters long, 3.4 meters deep.

6 (1-3) to the North Pacific and Okhotsk Sea in June-August 1959

Transparency (m)	Catch per one shackle of net with various mesh sizes								Percentage of catch of fish species				
	91mm	103mm	106mm	118mm	118mm*	121mm	124mm	127mm	Red (ベニ)	Chum (シロ)	Pink (マス)	Silver (ギン)	King (マスノスケ)
10	0.18	0.50	0.22	0.50	0	0.16	0.50	0.27		5.3	94.7		
10					0.25	0.33	0.50	0.75		50.0	43.7		6.3
10	0.18	1.00	0.78	0.50	0.50	0.95	0	0.90		37.5	62.5		
					2.75	2.62	0.50	1.45		68.6	30.4		1.0
11	0.45	0.50	0.56	1.00	2.50	3.24	5.50	2.45	1.0	53.4	45.1	0.5	
8	5.36	10.50	8.67	12.50	5.75	6.56	17.50	8.45	0.2	43.4	56.2	0.2	
7	9.28	26.50	22.56	26.00	19.25	30.92	25.50	21.28		62.5	37.4	0.1	
					0.75	18.28	24.50	18.91		68.2	31.8		
7					0.50	11.00	10.50	11.82		48.2	51.8		
11.5					2.50	3.76	1.50	0.90	43.8	22.3	33.9		
11	1.23	4.50	2.00	2.00	0.75	1.39	4.50	0.46	79.1	6.9	14.0		
11	0.37	4.50	1.55	1.00	0	1.59	5.00	1.37	11.0	38.1	50.9		
	10.64	13.00	13.00	6.50	7.50	10.51	12.00	6.09		23.3	76.5		0.2
10	2.91	6.00	4.11	2.50	4.25	6.22	7.00	3.09	19.5	37.3	42.9	0.3	
	10.09	14.00	14.67	13.00		12.23	8.50	8.73	16.6	22.1	61.1	0.2	
	20.36	50.50	37.11	41.00		36.61	25.00	20.36	3.4	26.0	70.6		
10						9.13		5.09	0.6	62.9	36.1	0.2	0.2
8						2.15		1.36	0.8	77.7	21.5		
7						2.75		1.55		36.2	62.8	0.5	0.5
8	3.18	3.00	4.11	3.50		5.08	4.00	3.82	0.4	64.4	35.2		
12						2.81	2.50			70.6	29.4		
12						2.68	2.50	2.45		39.1	60.5	0.4	
						0.89	0.50			29.6	70.4		
						1.22	0.50	0.73	0.9	45.5	9.1	44.5	
						1.99	2.00	2.36	7.4	46.5	7.4	38.7	
8						6.49	4.50	3.45	8.4	22.0	5.3	64.3	
8						5.39	2.00	3.55	8.5	21.7	14.0	53.9	1.9
						3.05			0.3	31.4	44.6	23.1	0.6
7						4.07	5.50	3.55	2.8	16.0	5.6	75.3	0.3

14. Data on Measurement of Biological Characters of Salmon
(鮭鱒生物学的測定記録)

Specimens were sampled at random from the mixed catch at every fishing operation. Measurement of biological characters and sex determination were carried out on board.

Age determination by scale reading was made later by Tamotsu Yonemori of the Hokkaido Fisheries Experimental Station in Yoichi.

Tabulation of data was made by K. Kyushin and T. Kinoshita of the University.

Abbreviations:

Sex, F.	Female
M.	Male
F. L.	Fork length
B. W.	Body weight
G. W.	Gonad weight

Table 28. Data on measurement of biological characters of salmon in the "Hokusei Maru" cruise 6 (1-3) to the North Pacific and Okhotsk Sea in June-August 1959

I. Cruise 6 (1)

1. Pink salmon, カラフトマス (All 2 years old)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)
1	F	500	2000	78
	F	498	1700	80
	F	492	1700	110
	F	490	1660	65
	F	488	1700	70
	F	474	1500	85
	M	547	2500	8
	M	535	2000	11
	M	528	2200	18
	M	524	2200	40
	M	512	2000	34
	M	510	1900	28
	M	494	1800	20
	M	486	1600	28
	M	478	1700	20
	M	477	1600	—
3	F	475	1400	75
	F	465	1300	76
	F	457	1300	67
3	F	457	1200	66
	F	453	1300	70
	F	450	1000	32
	F	443	1030	79
	F	422	910	11
	F	422	800	71
	M	538	1200	41
	M	515	1900	65
	M	509	2000	27
	M	501	1600	32
	M	500	1800	50
	M	500	1540	10
	M	500	1500	30
	M	498	1650	33
	M	498	1600	27
	M	493	1600	14
	M	487	1300	10
	M	481	1400	18
	M	480	1590	25

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)
3	M	477	1400	14
	M	463	1100	19
	M	458	1300	25
	M	458	1200	36
	M	456	1300	15
	M	454	1400	17
	M	448	1320	29
	M	444	1150	26
4	F	464	1200	80
	F	462	1300	76
	F	448	1200	63
	F	445	1200	75
	F	441	1200	67
	F	440	1100	45
	M	516	1900	25
	M	512	1900	40
	M	500	1600	14
	M	492	1500	10
	M	492	1500	19
	M	492	1400	19
	M	490	1400	38
	M	490	1400	26
	M	488	1500	20
	M	475	1400	19
	M	472	1300	37
	M	470	1300	17
	M	468	1400	19
	M	464	1300	33
	M	462	1300	32
	M	460	1400	36
	M	460	1300	31
	M	460	1200	11
	M	458	1400	39
	M	456	1200	27
	M	452	1200	25
	M	445	1200	44
	M	432	1200	23
	M	422	1000	23
5	F	490	1500	83
	F	472	1300	71

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)
5	F	459	1200	43
	F	446	1100	52
	F	398	800	98
	M	520	2000	21
	M	513	1700	22
	M	506	1900	29
	M	500	1700	23
	M	500	1500	15
	M	496	1800	16
	M	492	1400	31
	M	490	1500	18
	M	487	1500	20
	M	486	1500	34
	M	485	1500	30
	M	485	1500	35
	M	483	1400	36
	M	478	1400	16
	M	477	1500	21
	M	475	1100	15
	M	470	1300	16
	M	467	1300	16
	M	465	1400	13
	M	460	1400	22
	M	456	1300	22
	M	445	1200	10
	M	430	800	16
	M	410	800	18
6	F	443	1100	76
	F	440	1100	64
	F	438	950	61
	F	434	900	53
	F	425	900	62
	F	418	900	55
	F	405	800	42
	M	512	2800	28
	M	500	1800	46
	M	495	1700	16
	M	480	1400	24
	M	469	1300	11
	M	468	1300	29
	M	465	1200	20

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)
6	M	464	1250	26
	M	464	1200	18
	M	460	1200	33
	M	454	1100	12
	M	450	1300	18
	M	450	1100	15
	M	447	1200	20
	M	444	1100	28
	M	441	1100	25
	M	438	1000	18
	M	432	1000	15
	M	432	1200	28
	M	432	1000	25
	M	426	1000	20
	M	424	900	15
	M	405	900	34
7	F	470	1300	66
	M	517	1900	30
	M	505	1500	8
	M	498	1600	36
	M	498	1400	26
	M	495	1600	46
	M	488	1700	25
	M	488	1500	22
	M	487	1600	25
	M	486	1500	21
	M	483	1500	30
	M	480	1500	27
	M	480	1300	26
	M	476	1500	25
	M	474	1400	36
	M	470	1500	15
	M	470	1200	25
	M	467	1400	30
	M	466	1300	18
	M	465	1300	21
	M	465	1300	20
	M	465	1300	26
	M	460	1400	29
	M	458	1300	26
	M	457	1300	21
7	M	455	1200	26
	M	450	1200	38
	M	448	1100	34
	M	445	1200	33
	M	422	900	20
8	F	478	1400	80
	F	440	1200	43
	F	425	1100	60
	M	520	1650	16
	M	518	1700	50
	M	515	1900	49
	M	515	1500	29
	M	514	1700	28
	M	511	1800	38
	M	507	1800	26
	M	505	1600	12
	M	498	1700	22
	M	494	1700	27
	M	494	1600	21
	M	490	1600	39
	M	486	1500	44
	M	483	1500	17
	M	482	1600	21
	M	480	1500	27
	M	480	1500	57
	M	478	1400	27
	M	472	1400	25
	M	471	1400	40
	M	468	1400	47
	M	468	1400	36
	M	468	1400	46
	M	456	1200	21
	M	455	1400	29
	M	453	1300	44
	M	448	1300	54
9	F	483	1600	87
	F	476	1600	86
	F	474	1400	90
	F	471	1600	54
	F	432	1150	59

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)
9	F	419	1100	55
	M	518	1950	17
	M	512	2000	17
	M	509	1750	14
	M	507	1600	22
	M	503	1600	32
	M	502	1700	13
	M	497	1700	26
	M	496	1500	29
	M	494	1600	21
	M	493	1700	21
	M	493	1550	22
	M	487	1550	30
	M	482	1550	29
	M	480	1700	14
	M	480	1500	18
	M	475	1550	19
	M	470	1450	23
	M	470	1400	36
	M	470	1350	38
	M	470	1350	25
	M	469	1500	28
	M	462	1300	19
	M	460	1200	34
	M	451	1250	20
	—	547	2000	—
10	F	478	1400	85
	F	474	1500	73
	F	464	1300	76
	F	447	1200	67
	M	530	2200	66
	M	500	2000	40
	M	496	1700	10
	M	496	1500	27
	M	488	1600	46
	M	486	1450	55
	M	479	1500	28
	M	477	1500	36
	M	475	1400	26
	M	474	1500	37
	M	470	1350	35

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)
10	M	470	1300	16
	M	468	1400	29
	M	464	1400	36
	M	460	1400	58
	M	460	1300	32
	M	460	1200	35
	M	459	1200	35
	M	457	1300	55
	M	457	1300	46
	M	456	1300	46
	M	454	1250	45
	M	448	1200	37
	M	443	1100	46
11	F	460	1100	40
	F	431	1000	62
	F	430	800	54
	F	418	900	55
	F	400	900	34
	M	515	1700	10
	M	511	1800	20
	M	494	1500	39
	M	471	1300	38
	M	462	1400	65
12	F	487	1600	44
	F	485	1600	98
	F	475	1500	75
	F	467	1500	70
	F	464	1500	76
	F	463	1200	61
	F	460	1400	57
	F	456	1200	53
	F	447	1300	73
	F	445	1100	33
	F	443	1000	61
	F	400	800	34
	F	400	1000	60
	M	541	2100	43
	M	525	1850	7
	M	514	2200	20
	M	510	1800	32

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)
12	M	502	1900	20
	M	497	1600	9
	M	496	1800	21
	M	494	1800	38
	M	493	1450	28
	M	487	1800	29
	M	480	1700	65
	M	480	1500	37
	M	477	1400	36
	M	470	1600	33
	M	452	1200	51
	M	447	1200	38
	M	435	950	40
13	F	485	1500	130
	F	466	1300	61
	F	464	1500	45
	F	463	1300	93
	F	462	1300	79
	F	462	1200	85
	F	453	1050	51
	F	450	1200	90
	F	449	1200	160
	F	448	1100	46
	F	445	1100	69
	F	443	1200	69
	F	442	1300	96
	F	431	900	47
	M	522	2200	69
	M	517	2100	12
	M	486	1500	20
	M	485	1600	39
	M	482	1500	36
	M	479	1550	45
	M	477	1300	36
	M	476	1400	15
	M	473	1300	20
	M	467	1250	40
	M	466	1300	32
	M	465	1400	20
	M	460	1300	34
	M	454	1300	22

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)
13	M	443	1100	15

2. Chum salmon シロサケ

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
2	F	650	3200	67	5
	F	615	2800	9	5
	F	548	2100	65	5
	M	605	3200	5	4
	M	588	2600	38	4
	M	578	2900	110	4
	M	561	2300	3	4
	M	542	2000	29	4
3	F	578	2500	75	5
	F	576	2300	55	5
	F	571	2300	96	5
	F	568	2400	130	5
	F	562	2400	90	4
	F	546	2300	150	4
	F	546	2100	30	4
	F	540	2000	80	4
	F	533	1800	28	4
	F	525	2000	38	4
	F	521	2000	28	4
	F	520	1900	94	4
	F	513	1700	130	4
	M	584	2600	14	4
	M	579	2600	25	4
	M	553	2000	12	4
	M	545	2000	8	4
	M	545	2000	12	4
	M	522	1900	2	4
4	F	568	2200	40	5
	F	573	2500	64	4
	F	568	2300	69	4
	F	565	2200	23	4
	F	546	2100	42	4
	F	540	2100	45	4
	F	534	1900	42	4
	F	512	1900	57	4

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
4	M	626	3100	6	5
	M	538	2100	14	5
	M	608	3100	35	4
	M	607	2800	4	4
	M	586	2800	37	4
	M	580	2600	2	4
	M	570	2600	62	4
	M	567	2300	4	4
	M	565	2300	15	4
	M	564	2300	24	4
	M	562	2300	24	4
	M	560	2100	17	4
	M	555	2200	5	4
	M	554	2300	12	4
	M	554	2100	4	4
	M	547	1900	14	4
	M	546	2200	16	4
	M	545	2000	7	4
	M	538	2100	31	4
	M	532	2200	8	4
	M	532	1700	8	4
	M	526	2000	8	—
5	F	575	2400	140	5
	F	563	2300	56	5
	F	582	2500	73	4
	F	550	2000	55	4
	F	548	2100	70	4
	F	538	1900	43	4
	F	538	1700	46	4
	F	535	1900	40	4
	F	534	2100	138	4
	F	526	1900	25	4
	F	555	2200	53	—
	F	532	1900	100	—
	M	614	3000	55	5
	M	580	2300	11	5
	M	573	2800	65	4
	M	568	2200	11	4
	M	567	2100	12	4
	M	563	1200	13	4
	M	560	2100	10	4
5	M	558	2000	11	4
	M	553	2000	58	4
	M	552	2200	12	4
	M	548	2200	18	4
	M	545	2100	36	4
	M	535	1900	8	4
	M	533	2200	25	4
	M	530	1800	8	4
	M	523	1800	12	4
	M	565	2300	5	—
	M	535	1900	8	—
6	F	572	2400	67	5
	F	569	2300	50	5
	F	587	2200	87	4
	F	564	2300	42	4
	F	562	2100	75	4
	F	557	2100	97	4
	F	548	1900	50	4
	F	546	2200	67	4
	F	544	2100	39	4
	F	540	2200	50	4
	F	540	1800	56	4
	F	536	1700	44	4
	F	534	1900	70	4
	F	534	1800	61	4
	F	532	1800	63	4
	F	530	1800	45	4
	F	530	1700	56	4
	M	560	2300	13	5
	M	570	2400	8	4
	M	569	2400	24	4
	M	564	2200	37	4
	M	562	2200	7	4
	M	547	2200	36	4
	M	540	1900	36	4
	M	534	1800	10	4
	M	538	1700	39	4
	M	524	1900	8	4
	M	514	1600	22	4
	M	555	2400	19	—
	M	546	2100	27	—

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
7	F	612	3100	76	5
	F	565	2100	170	5
	F	567	2400	98	4
	F	559	2300	102	4
	F	555	2300	85	4
	F	550	2400	98	4
	F	550	2100	82	4
	F	548	2200	86	4
	F	548	1900	48	4
	F	545	2100	59	4
	F	544	1800	66	4
	F	524	2000	59	4
	F	524	1800	66	4
	F	522	1900	65	4
	F	522	1800	46	4
	F	520	1900	63	4
	F	518	1600	65	4
	M	565	2300	22	5
	M	606	2900	33	4
	M	576	2200	31	4
	M	569	2400	9	4
	M	550	2500	24	4
	M	550	2100	8	4
	M	550	1900	13	4
	M	544	2200	72	4
	M	542	1900	12	4
	M	540	2100	39	4
	M	524	1600	45	4
	M	522	1700	36	4
	M	564	2400	35	—
8	F	570	2800	250	5
	F	567	1750	50	4
	F	565	2400	110	4
	F	565	2300	115	4
	F	564	2200	76	4
	F	562	2400	39	4
	F	556	2350	56	4
	F	555	2150	76	4
	F	545	2000	125	4
	F	530	1900	68	4
	F	518	1600	21	4

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
8	F	518	1600	67	4
	F	517	1600	31	4
	F	500	1600	38	4
	M	678	3900	44	5
	M	646	3300	25	5
	M	577	2400	10	5
	M	583	2300	31	4
	M	564	2600	14	4
	M	560	2200	11	4
	M	557	2100	20	4
	M	550	2300	7	4
	M	550	2200	11	4
	M	550	2000	13	4
	M	542	2000	14	4
	M	536	1900	56	4
	M	535	2000	24	4
	M	521	1800	9	4
9	F	623	3200	190	5
	F	608	3000	130	4
	F	579	2300	67	4
	F	573	2300	90	4
	F	571	2200	93	4
	F	568	2300	93	4
	F	558	2100	64	4
	F	555	2000	65	4
	F	550	2100	34	4
	F	549	2200	36	4
	F	542	2000	70	4
	F	541	1800	34	4
	F	540	2000	70	4
	F	531	1800	53	4
	F	530	2000	83	4
	F	524	1900	44	4
	F	522	1700	57	4
	F	520	1900	45	4
	M	608	2800	13	5
	M	603	3000	21	5
	M	610	3000	48	4
	M	588	2400	20	4
	M	568	2300	8	4
	M	560	2400	91	4

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
9	M	552	1900	9	4
	M	547	1900	41	4
	M	545	2200	10	4
	M	545	2000	20	4
	M	520	2000	19	4
10	F	544	2100	98	5
12	F	567	2500	82	4
	F	562	2300	95	4
	F	561	2200	120	4
	F	550	2550	55	4
	F	518	2000	59	4
	F	514	1900	56	4
	F	510	1650	27	4
	F	495	1700	34	4
	F	470	1300	39	4
	M	587	2650	20	5
	M	579	2900	78	4
	M	550	2500	52	4
	M	546	2300	64	4
	M	542	2300	25	4
	M	517	1950	19	4
13	F	609	2900	305	5
	F	567	2500	95	4
	F	562	2300	32	4
	F	560	2200	135	4
	F	558	2100	96	4
	F	552	1900	96	4
	F	546	2300	105	4
	F	545	2200	23	4
	F	542	2550	125	4
	F	535	2100	96	4
	F	529	1800	42	4
	F	526	2000	82	4
	F	524	2100	75	4
	F	520	2000	120	4
	F	520	1900	120	4
	F	514	1950	94	4
	M	584	2950	39	4
	M	570	2600	84	4
	M	564	2500	75	4
13	M	559	2600	130	4
	M	555	2700	94	4
	M	552	2400	78	4
	M	548	2300	77	4
	M	546	2100	40	4
	M	536	2100	51	4
	M	535	1800	10	4
	M	530	2300	16	4
	M	520	2100	90	4
	M	494	1600	35	4

3. Sockeye salmon ベニサケ

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
8	M	573	2200	53	5_3
10	F	567	2500	72	7_4
	F	552	2400	67	7_4
	F	603	3000	64	6_3
	F	576	2800	65	6_3
	F	570	2500	40	6_3
	F	562	2500	68	5_2
	F	498	1900	14	5_2
	F	536	2200	90	5_3
	F	528	1900	39	5_3
	F	508	1800	51	5_3
	F	505	1650	36	5_3
	F	500	1600	48	5_3
	F	500	1650	47	4_2
	F	565	2500	51	—
	F	473	1850	14	—
	M	618	3400	21	6_3
	M	552	2300	29	6_4
	M	532	1800	1	6_4
	M	485	1500	1	6_4
	M	521	1900	61	5_3
	M	507	1600	1	5_3
	M	476	1400	1	5_3
	M	520	2000	13	4_2
	M	515	1500	1	4_2
	M	509	1400	1	4_2

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
10	M	485	1400	1	4$_2$
	M	480	1500	1	4$_2$
	M	552	2000	1	—
	M	495	1600	1	—
11	F	606	3300	170	7$_3$
	F	596	3100	52	7$_4$
	F	526	2100	105	7$_4$
	F	597	2800	54	6$_3$
	F	595	2800	94	6$_3$
	F	593	2900	75	6$_3$
	F	576	2600	97	6$_3$
	F	575	3000	58	6$_3$
	F	570	2800	55	6$_3$
	F	555	2400	39	6$_3$
	F	543	2500	56	6$_3$
	F	580	3200	150	5$_2$
	F	548	2600	69	5$_2$
	F	540	2200	30	5$_3$
	F	512	2900	56	5$_3$
	F	500	1700	51	5$_3$
	F	472	1600	8	5$_3$
	F	470	1300	5	5$_3$
	F	425	1000	10	4$_2$
	F	580	3300	73	—
	F	575	2800	79	—
	F	565	2300	72	—
	F	564	2700	59	—
	M	582	3000	20	7$_4$
	M	598	2900	26	6$_3$
	M	535	2600	11	6$_3$
	M	557	2400	12	6$_4$
	M	570	2600	22	5$_3$
	M	564	2500	10	—
	—	527	2200	—	6$_4$
13	—	565	2950	—	4$_2$

II. Cruise 6 (2)

1. Pink salmon カラフトマス (All 2 years old)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)
14	F	534	2000	175
	F	500	1700	105
	F	498	1700	110
	F	490	1500	120
	F	486	1600	85
	F	485	1700	95
	F	485	1500	90
	F	485	1400	95
	F	478	1200	95
	F	475	1400	80
	F	472	1400	140
	F	465	1600	115
	F	460	1200	65
	F	450	1100	70
	M	542	2500	50
	M	510	1700	65
	M	510	1600	65
	M	494	1600	30
	M	485	1500	70
	M	474	1500	45
	M	470	1400	35
	M	467	1300	45
	M	467	1200	30
	M	466	1300	20
	M	464	1200	25
	M	460	1500	35
	M	460	1400	60
	M	460	1300	60
	M	450	1200	45
	—	455	1400	80
15	F	520	2000	95
	F	514	1900	90
	F	506	1700	105
	F	502	1600	125
	F	493	1800	135
	F	486	1400	100
	F	486	1200	90
	F	484	1400	105
	F	483	1400	110

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)
15	F	482	1600	110
	F	472	1400	110
	F	461	1200	120
	M	545	1800	35
	M	540	2400	115
	M	536	2200	50
	M	534	1900	65
	M	523	1600	30
	M	520	1800	55
	M	516	2000	75
	M	514	2000	110
	M	513	1800	100
	M	510	1700	100
	M	509	1900	65
	M	500	1900	85
	M	480	1400	65
	M	474	1500	35
	M	460	1100	40
	M	447	1000	40
	M	438	1100	70
	M	434	1200	65
16	F	506	1900	115
	F	495	1500	70
	F	492	1500	80
	F	485	1700	80
	F	484	1700	95
	F	484	1400	105
	F	484	1300	90
	F	483	1600	175
	F	480	1400	90
	F	474	1500	95
	F	470	1500	135
	F	465	1300	100
	F	462	1300	85
	F	456	1200	85
	F	454	1300	70
	F	454	1200	125
	F	450	1200	100
	F	448	1400	95
	M	560	2600	65
	M	542	2100	60
16	M	532	2300	125
	M	531	1800	50
	M	520	1800	75
	M	515	2000	45
	M	513	2000	70
	M	492	1400	100
	M	470	1400	55
	M	467	1300	80
	M	460	1200	60
	M	459	1200	70
17	F	491	1500	105
	F	490	1700	145
	F	485	1400	125
	F	483	1500	90
	F	482	1400	130
	F	481	1400	120
	F	480	1400	105
	F	475	1500	140
	F	466	1300	100
	F	450	1300	95
	M	562	2100	115
	M	546	2200	65
	M	542	2500	180
	M	535	2100	80
	M	535	2000	95
	M	533	1900	80
	M	518	1800	100
	M	510	1700	70
	M	510	1600	70
	M	509	1700	95
	M	509	1600	65
	M	508	1600	65
	M	486	1600	110
	M	486	1500	100
	M	484	1500	75
	M	482	1400	75
	M	480	1500	85
	M	475	1400	60
	M	470	1400	55
	M	468	1300	70

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)
18	F	500	1600	120
	F	497	1600	130
	F	497	1600	105
	F	493	1600	100
	F	492	1600	100
	F	485	1400	110
	F	480	1500	135
	F	465	1200	75
	F	460	1300	90
	F	446	1200	95
	F	436	1100	95
	F	418	900	90
	M	533	2100	75
	M	513	1800	75
	M	511	1800	95
	M	502	1700	95
	M	495	1700	60
	M	493	1500	90
	M	488	1800	100
	M	485	1600	45
	M	482	1400	55
	M	480	1300	60
	M	474	1300	75
	M	463	1200	35
	M	446	1100	40
	M	438	1100	70
19	F	518	1600	115
	F	513	1600	100
	F	495	1600	110
	F	485	1400	115
	F	482	1500	120
	F	482	1400	80
	F	482	1300	135
	F	480	1300	110
	F	480	1300	105
	F	478	1500	130
	F	478	1500	90
	F	478	1400	110
	F	474	1400	110
	F	470	1400	115
	F	466	1300	95
19	F	463	1300	80
	F	460	1300	100
	F	450	1200	130
	F	445	1100	20
	F	428	1200	105
	M	533	2300	145
	M	512	1600	30
	M	505	1500	95
	M	498	1600	110
	M	481	1400	30
	M	480	1500	80
	M	478	1600	75
	M	470	1400	30
	M	460	1300	20
	M	448	1200	80
20	F	497	1600	150
	F	490	1600	115
	F	486	1400	135
	F	483	1500	85
	F	482	1600	115
	F	479	1300	140
	F	478	1400	90
	F	475	1300	110
	F	472	1500	115
	F	470	1600	125
	F	470	1400	100
	F	466	1600	100
	F	463	1400	70
	F	463	1200	125
	F	450	1300	145
	F	450	1200	120
	M	530	2200	70
	M	510	1700	60
	M	507	1700	50
	M	505	1700	60
	M	502	1800	105
	M	500	1700	55
	M	500	1600	45
	M	496	1900	50
	M	488	1800	60
	M	482	1400	90

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)
20	M	462	1500	20
	M	456	1200	60
	M	447	1100	50
	M	428	1100	45
21	F	502	1700	160
	F	495	1300	110
	F	494	1800	100
	F	492	1500	160
	F	490	1600	95
	F	487	1500	110
	F	478	1400	105
	F	476	1250	130
	F	474	1400	80
	F	473	1500	115
	F	473	1300	140
	F	470	1500	130
	F	468	1300	100
	F	468	1300	70
	F	462	1400	65
	F	458	1200	115
	F	456	1400	100
	F	452	1200	100
	F	450	1200	110
	F	450	1200	95
	F	447	1100	90
	F	434	1000	125
	M	529	2000	50
	M	512	2200	90
	M	474	1300	40
	M	470	1350	90
	M	448	1000	45
22	F	515	1900	115
	F	510	1600	45
	F	503	1900	80
	F	485	1500	80
	F	484	1600	100
	F	483	1600	125
	F	475	1500	120
	F	473	1500	110
	F	473	1400	120
22	F	472	1600	120
	F	470	1600	95
	F	467	1300	130
	F	460	1400	90
	F	455	1400	85
	F	454	1400	105
	F	450	1200	110
	M	520	2000	60
	M	504	1800	85
	M	504	1700	40
	M	503	1900	90
	M	500	1800	65
	M	500	1700	95
	M	496	1400	40
	M	482	1600	45
	M	470	1500	100
	M	461	1300	65
	M	459	1300	70
	M	455	1400	110
	M	445	1300	40
	M	430	1100	55

2. Chum salmon シロサケ

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
14	F	618	2100	135	5
	F	620	2500	80	4
	F	618	2600	210	4
	F	612	2100	245	4
	F	608	3300	110	4
	F	583	2500	50	4
	F	580	2800	100	4
	F	572	2500	195	4
	F	571	2600	200	4
	F	568	2700	280	4
	F	562	2600	235	4
	F	562	2400	165	4
	F	560	2500	165	4
	F	554	2600	120	4
	F	550	2100	130	4
	F	548	2500	100	4

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
14	F	545	2300	110	4
	F	542	2000	90	4
	F	541	2200	75	4
	F	541	1200	65	4
	F	537	2000	120	4
	F	529	1900	95	4
	F	578	2500	—	—
	M	580	2800	90	4
	M	580	2500	5	4
	M	572	2400	60	4
	M	565	2100	35	4
	M	548	2200	65	4
	M	536	2000	50	4
	M	527	1800	65	4
	M	512	1600	1	3
	M	564	2200	50	—
	—	600	2900	—	—
15	F	615	2900	245	5
	F	612	3000	350	5
	F	624	3100	185	4
	F	602	2700	220	4
	F	596	2600	195	4
	F	594	2600	210	4
	F	593	2600	160	4
	F	586	2600	150	4
	F	576	2400	170	4
	F	570	2300	165	4
	F	567	2300	90	4
	F	560	2300	140	4
	F	548	2400	155	4
	F	534	1900	65	4
	F	505	1900	120	4
	F	500	1600	50	4
	F	500	1500	70	4
	F	500	1600	55	3
	F	488	1600	100	3
	F	425	900	5	3
	M	644	3800	200	4
	M	636	3600	210	4
	M	607	2900	150	4
	M	594	3000	200	4
15	M	574	2100	125	4
	M	572	2400	100	4
	M	570	2300	125	4
	M	558	2300	50	4
	M	515	1700	35	3
	M	482	1600	15	3
	—	580	2300	—	—
16	F	603	2700	145	4
	F	590	2800	165	4
	F	582	2600	160	4
	F	561	2800	155	4
	F	550	2200	55	4
	F	550	2100	215	4
	F	545	2200	170	4
	F	543	2100	55	4
	F	543	2000	150	4
	F	525	1900	95	4
	F	515	1800	215	4
	F	512	1700	80	4
	F	490	1300	5	3
	F	485	1300	5	3
	F	483	1400	40	3
	F	453	1000	5	3
	F	450	1000	4	3
	M	666	3900	165	5
	M	585	2800	35	4
	M	583	2600	35	4
	M	560	2400	15	4
	M	560	2200	90	4
	M	538	2100	60	4
	M	534	1500	5	4
	M	516	1100	1	4
	M	508	1300	1	3
	M	503	1600	1	3
	M	485	1400	1	3
	M	450	1000	1	3
	M	510	1900	115	—
17	F	613	3500	200	5
	F	590	3100	160	4
	F	590	2800	140	4

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
17	F	574	2500	160	4
	F	559	2300	100	4
	F	558	2200	90	4
	F	556	2200	130	4
	F	555	2200	120	4
	F	550	2400	80	4
	F	545	2200	100	4
	F	544	2200	60	4
	F	532	2000	145	4
	F	530	1700	3	4
	F	525	1600	65	4
	F	550	2200	85	3
	F	529	1900	5	3
	F	472	1400	4	3
	F	545	2000	80	—
	M	673	4100	—	5
	M	613	3700	83	4
	M	606	2200	80	4
	M	605	3200	120	4
	M	585	2700	95	4
	M	566	2400	120	4
	M	555	2500	90	4
	M	550	2400	115	4
	M	550	2200	15	4
	M	534	2600	165	4
	M	495	1500	30	4
	M	554	2400	10	3
18	F	590	2800	170	5
	F	602	2800	335	4
	F	600	2900	70	4
	F	584	2800	95	4
	F	580	2200	135	4
	F	558	2000	75	4
	F	555	2200	110	4
	F	554	2000	50	4
	F	552	2200	60	4
	F	550	2200	100	4
	F	540	2000	60	4
	F	535	2200	80	4
	F	535	2000	125	4
	F	532	1900	135	4
18	F	530	1900	80	4
	F	525	2100	140	4
	F	510	1300	45	4
	F	532	2000	135	—
	M	627	2500	125	4
	M	600	3100	125	4
	M	592	2800	10	4
	M	590	2700	135	4
	M	578	2300	85	4
	M	570	2500	20	4
	M	570	2400	70	4
	M	556	2500	75	4
	M	552	2300	85	4
	M	552	2200	5	4
	M	547	2100	50	4
	M	517	1700	45	4
19	F	582	2600	105	5
	F	573	3000	150	5
	F	606	2900	265	4
	F	593	3000	135	4
	F	580	2600	30	4
	F	570	2300	40	4
	F	565	2400	100	4
	F	550	2200	100	4
	F	538	2000	70	4
	F	534	2200	85	4
	F	530	1800	130	4
	F	512	1600	65	4
	F	510	1800	160	4
	F	506	1800	100	4
	M	604	3400	170	4
	M	600	3000	140	4
	M	598	2900	50	4
	M	584	2800	135	4
	M	580	2400	65	4
	M	574	2800	100	4
	M	574	2700	80	4
	M	573	3100	115	4
	M	564	2700	70	4
	M	562	2400	110	4
	M	550	2000	40	4

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
19	M	545	1900	55	4
	M	544	2300	125	4
	M	540	2200	20	4
	M	514	1900	95	4
	M	495	1500	100	3
20	F	586	2600	300	5
	F	593	2700	230	4
	F	592	3000	110	4
	F	580	2600	140	4
	F	572	2600	155	4
	F	570	2500	85	4
	F	568	2300	95	4
	F	568	2100	70	4
	F	558	2500	120	4
	F	550	2000	170	4
	F	546	1800	100	4
	F	540	2000	140	4
	F	534	1700	155	4
	F	530	2000	185	4
	F	504	1700	120	4
	F	488	1500	90	4
	F	494	1500	105	3
	F	402	760	—	2
	F	392	700	—	2
	F	390	700	—	2
	F	389	600	—	2
	F	387	620	—	2
	F	378	560	—	2
	F	375	620	—	2
	F	355	540	—	2
	F	542	2000	180	—
	M	652	4000	230	4
	M	603	2900	55	4
	M	594	2800	220	4
	M	578	2600	150	4
	M	576	2800	65	4
	M	570	2400	95	4
	M	558	2200	10	4
	M	552	2300	105	4
	M	538	2300	85	4
	M	504	1600	75	4

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
20	M	510	1600	20	3
	M	407	820	—	2
	M	405	840	—	2
	M	400	760	—	2
	M	390	680	—	2
	M	390	660	—	2
	M	380	600	—	2
	M	374	620	—	2
	M	370	560	—	2
	M	358	520	—	2
	M	572	2500	140	—
21	F	580	2600	45	4
	F	574	2300	40	4
	F	565	2400	80	4
	F	555	2400	80	4
	F	553	2600	110	4
	F	550	2400	125	4
	F	550	2200	105	4
	F	548	1900	5	4
	F	538	2000	75	4
	F	520	1900	120	4
	F	503	1600	5	3
	F	571	2600	45	—
	F	554	2100	25	—
	M	615	3400	95	4
	M	602	2900	10	4
	M	598	2800	80	4
	M	590	2800	100	4
	M	580	2600	70	4
	M	580	2600	15	4
	M	572	2400	10	4
	M	570	2600	100	4
	M	560	2500	20	4
	M	552	2500	1	4
	M	552	2000	2	4
	M	550	2400	65	4
	M	532	2100	15	4
	M	526	2200	65	4
	M	513	1800	80	4
	M	545	2200	90	3
	M	495	1400	5	3

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
22	F	600	2900	160	4
	F	585	2500	25	4
	F	578	2600	105	4
	F	574	2400	140	4
	F	594	2600	50	3
	F	550	2300	65	3
	F	550	2000	45	3
	F	546	2300	170	3
	F	596	2900	70	—
	F	590	2400	25	—
	F	582	2700	65	—
	F	548	2200	45	—
	F	536	2400	120	—
	M	643	4500	275	4
	M	605	3400	70	4
	M	600	2900	110	4
	M	594	2800	50	4
	M	577	2500	35	4
	M	575	2200	30	4
	M	573	2500	1	4
	M	567	2500	125	4
	M	567	2300	25	4
	M	550	2200	25	4
	M	560	2200	20	3
	M	547	2400	40	3
	M	528	1800	1	3
	M	482	1600	105	3
	M	626	3500	20	—
	M	548	2400	30	—
	M	535	2200	20	—

3. Sockeye salmon ベニサケ

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
14	F	588	2800	300	7_4
	F	608	3000	—	6_3
	F	600	2500	170	6_3
	F	595	3000	135	6_3
	F	594	3000	165	6_3
	F	590	3000	90	6_3
	F	600	4000	95	5_2
14	F	560	2400	100	5_2
	F	532	2200	125	4_2
	F	604	3200	190	—
	F	590	2900	90	—
	F	590	2800	70	—
	F	584	2900	110	—
	F	525	—	160	—
	F	506	1900	65	—
	M	655	3700	45	6_3
	M	608	3000	95	6_3
	M	571	—	80	6_3
	M	624	3700	35	5_2
	M	600	2800	40	5_2
	M	580	—	85	5_2
	M	575	2600	15	5_3
	M	548	2100	45	5_3
	M	560	2600	40	4_2
	M	596	—	30	—
	M	595	3200	40	—
	M	568	2500	45	—
15	F	594	2700	85	7_4
	F	564	2600	100	7_4
	F	605	3000	140	6_3
	F	598	2900	120	6_3
	F	590	3100	130	6_3
	F	587	3000	130	6_3
	F	585	3000	95	6_3
	F	570	2500	175	6_3
	F	567	2800	150	6_3
	F	530	1900	70	6_1
	F	585	2900	160	5_2
	F	573	2400	135	5_2
	F	538	2200	150	4_1
	F	598	3100	135	—
	F	597	3400	200	—
	F	555	2300	145	—
	M	629	3600	65	7_4
	M	644	3500	70	6_3
	M	642	4200	60	6_3
	M	628	3900	80	6_3
	M	624	2900	70	6_3

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
15	M	622	4900	100	6_3
	M	608	3000	60	6_3
	M	606	2700	80	6_3
	M	605	2600	90	6_3
	M	550	2000	60	6_4
	M	640	4100	70	5_2
	M	616	3600	90	—
	M	485	1600	40	—

III. Cruise 6 (3)

1. Pink salmon カラフトマス (All 2 years old)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)
23	F	535	1200	155
	F	527	1800	140
	F	523	2000	125
	F	511	1700	135
	F	510	1800	130
	F	510	1700	130
	F	509	1800	135
	F	500	1350	120
	F	498	1500	125
	F	497	1600	105
	F	495	1750	120
	F	480	1300	110
	M	550	2250	105
	M	539	2000	95
	M	522	2000	90
	M	508	1650	55
	M	482	1450	75
	M	475	1500	95
	M	474	1250	60
	M	472	1300	40
	M	471	1600	60
25	F	530	1800	200
	F	520	2150	200
	F	518	1800	220
	F	512	1700	170
	F	510	1800	240
	F	510	1700	215
25	F	498	1600	185
	M	562	2300	115
	M	528	2050	120
	M	525	2000	115
26	F	537	2200	135
	F	526	2200	120
	F	526	2000	145
	F	517	1800	140
	F	515	1850	120
	F	513	1900	95
	F	513	1800	105
	F	512	1600	120
	F	510	1900	100
	F	510	1400	150
	F	506	1600	110
	F	504	1900	85
	F	498	1600	100
	F	493	1400	—
	F	492	1600	120
	M	539	2000	30
	M	520	1900	35
	M	518	1900	70
	M	516	1800	25
	M	500	1800	50
	M	485	1500	30
27	F	578	1400	85
	F	540	2050	120
	F	537	2000	140
	F	536	1900	130
	F	530	2000	145
	F	522	1800	115
	F	520	1950	125
	F	520	1900	130
	F	517	2200	150
	F	515	1900	95
	F	515	1800	135
	F	515	1500	100
	F	514	1950	120
	F	513	1800	110
	F	510	1700	115

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)
27	F	508	1600	105
	F	506	1700	105
	F	502	1600	110
	F	500	1700	90
	F	498	1700	145
	F	488	1400	115
	F	483	1550	95
	F	479	1500	110
	M	545	2000	70
	M	540	2050	60
	M	534	2100	60
	M	533	2000	65
	M	526	1900	55
	M	518	1800	30
	M	498	1600	65
28	F	548	2000	110
	F	544	2100	140
	F	541	2200	120
	F	535	2100	160
	F	532	1900	105
	F	528	1900	145
	F	525	1800	140
	F	524	2000	125
	F	520	2100	110
	F	519	1800	120
	F	516	1200	160
	F	511	2000	125
	F	510	1700	145
	F	505	1900	90
	F	502	1700	95
	F	494	1600	80
	F	490	1700	100
	F	481	1500	100
	F	480	1500	100
	M	540	2000	50
	M	535	2100	90
	M	531	2200	70
	M	530	2000	50
	M	527	2100	95
	M	527	2000	50
	M	525	2000	50
28	M	522	2000	60
	M	514	2000	15
	M	514	1700	60
	M	492	1600	45
29	F	562	2500	165
	F	544	2000	145
	F	540	2100	125
	F	533	2000	110
	F	533	1950	120
	F	526	1900	155
	F	516	1750	120
	F	514	1800	120
	F	500	1700	110
	F	483	1600	125
	M	512	1600	60
	M	504	1700	65

2. Chum salmon シロサケ

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
24	F	650	3400	190	4
	F	626	3600	295	4
	F	625	3550	255	4
	F	622	3600	160	4
	F	618	3300	140	4
	F	616	3300	180	4
	F	605	3300	125	4
	F	600	3000	285	4
	F	598	2900	190	4
	F	594	2700	245	4
	F	590	2600	210	4
	F	585	2600	140	4
	F	584	2750	175	4
	F	582	3100	215	4
	F	578	2500	170	4
	F	568	1950	1	4
	F	564	2450	120	4
	F	561	2500	210	4
	F	553	2300	55	4
	F	537	2100	295	4

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
24	F	535	2050	130	3
	F	528	1700	4	3
	F	585	2550	130	—
	M	620	3100	80	5
	M	664	3850	135	4
	M	642	3700	120	4
	M	634	4150	185	4
	M	535	2100	100	3
	M	525	2000	45	3
	M	487	1700	80	3
25	F	575	2400	90	5
	F	633	3400	385	4
	F	623	3600	430	4
	F	622	3400	380	4
	F	618	3600	345	4
	F	613	3400	290	4
	F	603	3400	445	4
	F	600	2900	310	4
	F	593	2900	300	4
	F	590	3200	340	4
	F	590	2350	300	4
	F	589	2900	290	4
	F	585	2700	1	4
	F	585	2310	265	4
	F	580	2800	300	4
	F	577	2400	590	4
	F	569	2300	340	4
	F	565	2450	220	4
	F	560	2350	230	4
	F	545	1850	110	4
	F	527	1950	3	3
	M	685	5200	240	4
	M	635	3750	170	4
	M	628	3600	185	4
	M	590	3200	165	4
	M	578	2400	125	4
	M	575	2800	75	4
	M	574	2850	160	4
	M	532	1800	185	—

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
26	F	635	4000	215	4
	F	622	3200	60	4
	F	600	3400	225	4
	F	587	2600	130	4
	F	586	2800	230	4
	F	565	2500	280	4
	F	564	2500	250	4
	F	564	2300	150	4
	F	562	2400	5	4
	F	557	2400	140	4
	F	554	2100	135	4
	F	550	2300	5	4
	F	550	2200	170	4
	F	542	2100	295	4
	F	516	1800	260	4
	F	545	2100	110	3
	F	544	2400	320	3
	F	538	2100	385	3
	F	532	2000	80	3
	F	482	1500	5	3
	M	690	5200	195	4
	M	650	3700	130	4
	M	607	3200	1	4
	M	600	3200	125	4
	M	592	3000	1	4
	M	582	3000	170	4
	M	560	2500	60	4
	M	556	2500	1	4
	M	565	2500	1	3
	M	554	2200	110	3
27	F	605	3000	205	4
	F	575	2700	109	4
	F	562	2400	165	4
	F	560	2600	185	4
	F	560	2500	180	4
	F	557	2450	120	4
	F	552	2500	120	4
	F	522	2050	150	4
	F	521	2000	120	4
	F	509	2000	5	4
	F	536	2100	4	3

Table 28. (Continued)

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
27	F	527	1950	100	3
	F	513	1700	3	3
	M	618	3700	135	4
	M	560	2400	85	4
	M	554	2600	170	4
	M	550	2350	1	4
	M	558	2200	1	3
	M	545	2100	30	3
	M	535	2000	1	3
	M	527	2200	150	3
	M	525	1950	1	3
	M	516	1700	45	3
	M	503	1600	1	3
	M	491	1600	80	3
	M	615	3400	130	—
	M	591	2700	120	—
	M	545	1950	1	—
	M	534	1900	1	—
28	F	646	3950	265	5
	F	624	3950	245	5
	F	612	3200	145	5
	F	650	3600	260	4
	F	642	3300	115	4
	F	638	3400	210	4
	F	629	3400	140	4
	F	625	3300	210	4
	F	615	3100	280	4
	F	602	2700	80	4
	F	598	3200	195	4
	F	595	2900	180	4
	F	590	2900	180	4
	F	585	2800	120	4
	F	580	2550	225	4
	F	574	2400	90	4
	F	566	2500	160	4
	F	556	2100	3	4
	F	544	2150	90	4
	F	543	2400	130	4
	F	577	2800	145	3
	F	525	1900	3	3
	F	520	1900	3	3
28	F	595	2800	360	—
	M	657	4400	140	4
	M	620	3200	60	4
	M	570	2350	1	3
	M	525	1800	1	3
	M	500	1650	1	3
	M	528	2150	130	—
29	F	649	3800	135	4
	F	625	3300	250	4
	F	600	2750	350	4
	F	578	3000	100	4
	F	577	2550	4	4
	F	548	2400	55	4
	F	544	2250	315	4
	F	533	2150	200	4
	F	520	2000	155	4
	F	508	1900	120	4
	F	531	2000	4	3
	F	530	1900	2	3
	F	527	2000	2	3
	F	500	1700	3	3
	F	498	1700	65	3
	F	596	3000	110	—
	F	568	2600	90	—
	F	556	2550	230	—
	M	596	2650	30	4
	M	522	1800	85	4
	M	544	2100	105	3
	M	531	2000	20	3
	M	530	2250	1	3
	M	524	1900	1	3
	M	477	1400	1	3
	M	690	4200	250	—
	M	517	2000	130	—

Table 28. (Continued)

3. Sockeye salmon ベニサケ

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)	Age
25	F	620	3350	140	7_4
	F	607	3350	205	7_4
	F	550	2000	290	7_4
	F	645	3300	1	6_3
	F	603	3150	130	6_3
	F	570	2950	160	6_3
	F	553	1900	125	6_3
	F	587	2500	260	5_2
	F	535	2200	230	5_2
	F	560	2150	165	5_3
	M	633	2850	70	7_4
	M	554	2100	45	7_4
	M	695	4050	90	6_3
	M	680	4500	115	6_3
	M	655	3600	90	6_3
	M	645	3400	90	6_3
	M	585	2700	90	6_3
	M	580	2550	50	—
	M	548	1750	25	—
	M	539	1900	65	—
26	F	600	2700	170	7_4
	F	545	2400	105	7_4
	F	630	3200	160	6_3
	F	610	2400	145	6_3
	F	607	2700	125	6_3
	F	576	2500	120	6_4
	F	545	2200	60	6_4
	F	530	1950	140	6_4
	F	590	2600	325	5_2
	F	567	2300	190	5_3
	F	557	2400	150	5_3
	F	527	1900	130	5_3
	M	655	3800	85	7_4
	M	634	3200	40	7_4
	M	600	2900	85	7_4
	M	656	4750	70	6_3
	M	655	4000	40	6_3
	M	655	3900	65	6_3
	M	585	2900	80	6_3
	M	565	2550	65	6_4
26	M	522	1600	35	6_4
	M	610	3400	60	5_3
	M	574	2700	95	5_3
	M	562	2400	45	5_3
	M	524	1900	80	5_3
	M	647	3800	65	—
	M	629	2900	75	—
	M	612	3100	65	—
	M	572	2300	60	—
	M	544	2300	25	—
27	F	595	2500	200	6_3
	F	557	2200	75	6_3
	F	567	2600	90	6_4
	F	550	2300	85	6_4
	F	547	2200	95	6_4
	F	540	2200	95	6_4
	F	537	2100	60	6_4
	F	513	1600	110	6_4
	F	505	1500	95	6_4
	F	498	1650	4	6_4
	F	582	2750	115	5_3
	F	560	2300	145	5_3
	F	554	2600	165	5_3
	F	526	1800	100	5_3
	F	504	1850	6	5_3
	F	550	2200	110	—
	M	650	3350	45	6_3
	M	577	2450	60	6_4
	M	532	2000	45	6_4
	M	500	1700	30	6_4
	M	574	2400	50	5_3
	M	572	2600	40	5_3
	M	560	2400	65	5_3
	M	553	2000	45	5_3
	M	657	3600	80	—
	M	574	2600	70	—
	M	562	2600	75	—
29	F	557	2100	55	6_4
	M	574	2500	1	5_3

Table 28. (Continued)

4. Silver salmn ギンサケ

No. of fishing	Sex	F. L. (mm)	B. W. (g)	G. W. (g)
24	F	605	3700	175
	F	572	2800	140
	F	570	2800	345
	F	570	2800	185
	F	554	2600	20
	F	522	2200	170
	M	650	4600	275
	M	620	4200	125
	M	620	3400	160
	M	503	1800	80
25	F	605	3200	170
	F	600	3600	310
	F	573	3000	235
	F	560	2500	170
	F	532	2150	200
	F	517	2150	110
	M	635	3550	110
	M	609	3800	230
	M	575	2600	235
	M	540	2300	170
27	F	615	3800	190
	F	604	3400	240
	F	594	3000	165
	F	584	3400	230
	F	556	2600	160
	F	556	2400	175
	M	613	3800	230
	M	586	2950	160
	M	584	3000	190
	M	525	2100	115
28	F	653	3000	250
	F	623	3500	125
	F	610	3600	250
	F	580	2700	150
	M	605	3600	265
	M	601	2900	40
	M	570	2700	130
29	—	602	3450	—

15. Publications Based on Data Gathered on "Hokusei Maru" Cruise

1. Akiba, Yoshio, Shoichi Yamamoto and Motokazu Ueno, 1959. On the oceanographical conditions of the Okhotsk Sea in summer of 1958. *Bull. Fac. Fish., Hokkaido Univ.* **10** (1), 37-46.
2. Maeda, Tatsuaki, Seikichi Mishima and Ichiro Saito, 1959. Studies on the fishing grounds. *Ibid.* **10** (1), 47-56. (in Japanese).
3. Nishiyama, Sakuzo, Shoichi Yamamoto, Yoshio Akiba and Motokazu Ueno, 1959. A study on the fishing grounds. *Ibid.* **10** (1), 31-36. (in Japanese).

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